THE

Journal *of* Home Economics

Vol. III JUNE, 1911 No. 3

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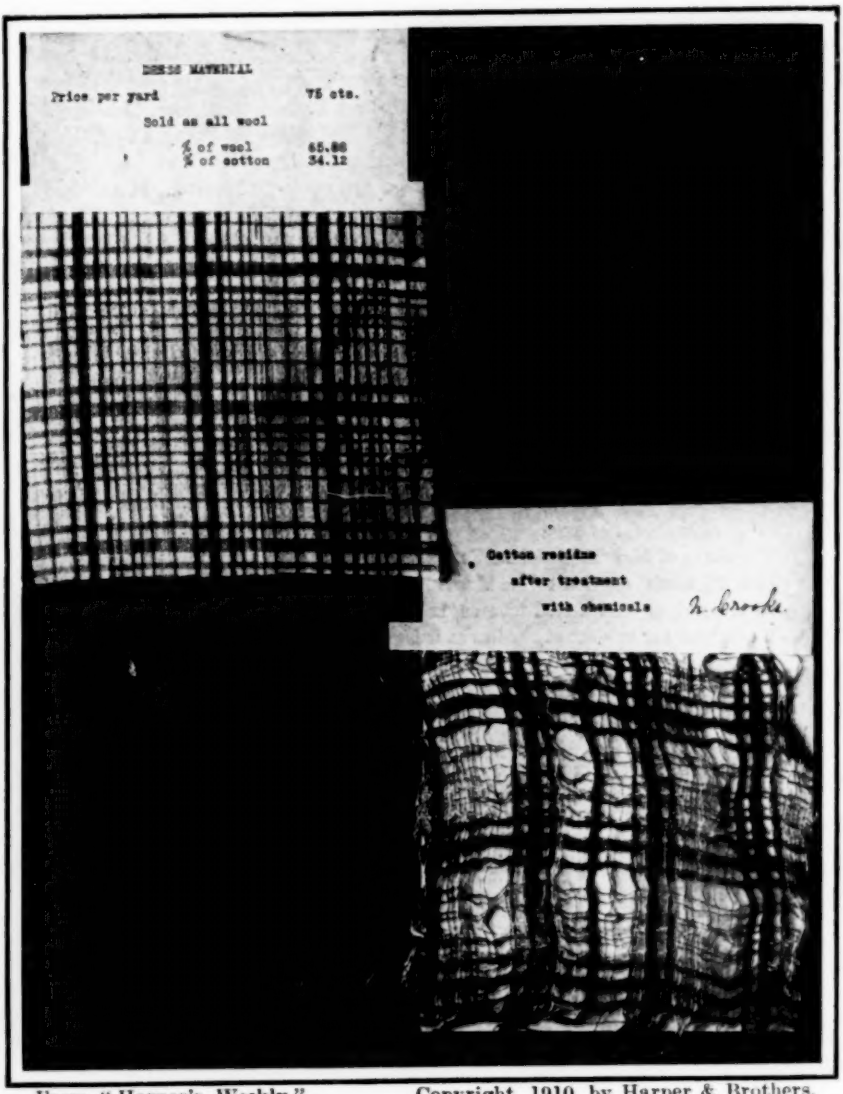

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An "All-Wool" Dress Material, showing upon Test 34.12 Per Cent of Cotton. (See Page 222.)

THE

Journal of Home Economics

VOL. III. JUNE, 1911 NO. 3

THE DEATH OF MRS. ELLEN H. RICHARDS.

Mrs. Ellen H. Richards, former president of the American Home Economics Association, died at her home, 32 Eliot St., Jamaica Plain, Massachusetts, on March 30 after a week's illness. On the 23d she was stricken with angina pectoris, a disease of which she had formerly had lighter attacks. She rallied, and for a few days there was hope of her recovery. On the 24th she even put the final touches to a paper which she was to read at the Congress of Technology to be held the second week of April. But a relapse soon followed and after a short period of unconsciousness on the 30th she died peacefully.

The funeral services were held April 2 in Trinity Church, Boston.

Mrs. Richards was born in Dunstable, Massachusetts, December 3, 1842, the daughter of Peter G. and Fannie Swallow. She graduated from Vassar College in 1870 and three years later was given the degree of M. A. from that college and of B. S. from the Institute of Technology. She was in that year appointed instructor in sanitary chemistry in the Women's Laboratory of the Institute and later was given the chair of sanitary chemistry which she held until her death.

In 1875 she married Prof. Robert H. Richards of the Massachusetts Institute of Technology.

A life of Mrs. Richards is to be written with the approval of Professor Richards. It is hoped that the story of her life may be of such a character that it will not only interest those who have known Mrs. Richards either personally or through her work but will also serve to extend her influence and to inspire future workers. Any material such as letters, photographs, characteristic sayings, and incidents which will help to show her personality and her far-reaching interests and activities will be very valuable to the editor, Miss Caroline L. Hunt, and should be sent to her at 32 Eliot Street, Jamaica Plain, Massachusetts.

MRS. RICHARDS' RELATION TO THE HOME ECONOMICS MOVEMENT.

ISABEL BEVIER.

Professor of Household Science, University of Illinois, and President American Home Economics Association.

We stand too much in the shadow of our great loss, too near to the results of Mrs. Richards' life, to form any adequate judgment of the countless ways in which she has influenced the Home Economics movement. Those at all familiar with the movement know that she has been for twenty-five years its prophet, its interpreter, its conservator, its inspirer, and to use her own word, its engineer.

As long ago as 1889 she was pleading for "domestic economy as a factor in public education." When Home Economics had no name and no place in the thought or plans of either philanthropists or educators, Mrs. Richards was working for it through the Collegiate Alumnae, the New England Kitchen, through sanitary chemistry, with individuals in their special problems, with groups of adventurous spirits seeking more light on the common daily tasks. Perhaps no one has ever served any cause through so many different channels.

In her were combined to an unusual degree the vision of the prophet with the constructive power of the engineer. Her visions must be wrought into deeds, and then she moved on quickly to a new vision, There comes to mind a remark she made to me once about a piece of work, "No use in doing that any more. You know how, go on to something new." It was the habit of her life to fashion old truths into new forms, to keep pace with the wheels of progress.

As an interpreter of Home Economics she has had no equal. To the scientist and sanitarian she could present its scientific and sanitary aspects; the next moment she could show the society leader its social significance, and then turn to the manager of the lunch room and the teacher and explain how they, each in their own way, could promote its interests. A glance at her published works shows the breadth of her view and her firm grasp on the essential principles of the Art of Right Living of which she spoke and wrote so often.

Mrs. Richards was so preëminently the moving spirit in so many enterprises that one forgets sometimes how much the world owes to her as a conservator, as well as an originator, of much that is best in our ideals of home and family life. The debt which Home Economics owes to her in this respect is a very large one. A self-seeking woman of narrow sympathies would have wrecked it many times, but her sanity, her sense of humor, her power of silence, her tolerance, her resourcefulness, and her discrimination made her its great conservator. No fads or fancies clouded her clear vision of essentials and non-essentials. Some of the last words she wrote show best her method.

> Have faith in the working out of the destiny of the race; be ready to accept the unaccustomed, to use the radium of social progress to cure the ulcers of the old friction. What if a few mistakes are made? How else shall the truth be learned? Try all things and hold fast that which is good.

Because she had this faith, this willingness to accept the unaccustomed, this ability to hold fast to the good, people trusted her judgment, followed her lead, even though they had not seen her vision. Her counsel has been sought by workers in every phase of the movement and from every part of the United States. Resourceful, alert, with unflagging energy and unbounded generosity, she could be depended upon to give something adapted to the particular need of each person or undertaking, could counsel how to avoid the rocks and pitfalls, and where, "having done all, *to stand*." In this sense she has served for many years as consulting engineer to the Home Economics movement. It is safe to say no university department has been organized, no important step taken, in which her ideas and her counsels have not had a part.

No more signal proof of her wise leadership is found than in the way in which she cherished and developed this unknown movement until it made for itself a place in the councils of our foremost educational organization, the National Education Association. There must have been a peculiar pleasure to her, as there was an evident appropriateness, in the request that she take her place in the Council of the N. E. A. and represent Home Economics. Then she could say, as she did at the Boston Meeting of the American Home Economics Association,

> To us to-day, is given to see the tree of our nurture with its roots firmly planted and branches spreading from sea to sea. The seed of it was planted many years ago and has many times been dug up to see if life existed. Home Economics,

the preservation of the home and the economics of living, occupy a large space in the transactions of societies and even in the daily press.

Better yet than all these tangible results of her numerous and varied activities, greater even than her power of initiative, was her power to inspire, to give fresh courage and new hope to those who had grown discouraged by the hardships of the way. Only those who have felt that healing touch and who have gone from her with a new vision of service realize the greatness of our loss. Only she could have said, as she did at the close of a busy week at the Boston Convention, these characteristic words which must ever serve as a watch-word as well as a benediction:

The word I wish to leave with you is Courage—Faith in the evolution of the race—Progress by the very means which seem at first sight to destroy all cherished ideals.

IN MEMORIAM: ELLEN H. RICHARDS.

A voice is hushed: but ere it failed,
The listening echoes caught its tone,
And now its message clear and keen
On every wind of heaven is blown.

A staff is broke: but ere it snapped,
Those who had leaned on it so long
Had made its steadfast fibre theirs,
And fare now forward, straight and strong.

A light is quenched: but ere it paled,
It lit a hundred torches' flame,
That shine across the darkening sky,
And star with gold one honored name.

LAURA E. RICHARDS.

April, 1911.

A STUDY OF THE SUBJECT OF TEXTILES AS IT IS PRESENTED IN HIGHER INSTITUTIONS.

ABBY L. MARLATT.

Professor of Home Economics, University of Wisconsin.

With a view to obtaining data as to the status of the teaching of textiles, letters were sent to the leading colleges and universities in this country asking what was presented under this title, first as to subject matter and second as to laboratory work. Replies were received from some thirty institutions, including technical institutions, colleges, and universities, situated from Maine to the Hawaiian Islands.

The results showed a very great difference in the standards as far as prerequisites, character and extent of work, and credits granted for graduation were concerned. Three required the student to take courses only in art and design; two required courses in chemistry as prerequisites; four required courses in the general subject of sewing for which no credit was given towards graduation; three institutions granted four credits in this subject; eight gave only laboratory work in the study of textiles; nine gave laboratory work in the design of costumes; two gave laboratory work in dyeing; four gave no work in textiles; two gave full work in textiles, and two gave full work in applied art; six reported no work in applied art; botany was a prerequisite in one institution; nineteen gave courses in applied art.

There seems to be a very wide latitude concerning the subject of the definition of a course in textiles. Varying with the institution, it seems to cover the study of textile fibres, their manufacture, chemical composition, adulteration, and hygienic value, through every phase of the clothing industry and the arts and crafts movement. One institution reports that under the name of textiles they give "sewing, handwork, often modelwork, with a few vague textile lectures." One writes that the students prepare essays on the four fibres, while one of our most prominent professional schools for women states that they give nothing under the name of textiles. The following outline represents in tabulated form the subject matter which is presented in the various institutions under this title. Only two, as previously stated, give all of this work.

TEXTILES: SUBJECT MATIER.

Phases:

I. Historic: Evolution of Industry—Processes (lecture):
- (A) Spinning.
- (B) Weaving.
- (C) Design (printing).
- (D) Color in fabrics (dyeing).
- (E) Bleaching.

II. Economic Conditions (lectures):
- (A) Home industries.
- (B) Rise of factory system.
- (C) Effect on woman as wage earner.

III. Modern Conditions:—
- (A) Study of fibres used today:
  - (1) Distribution.
  - (2) Cultivation and varieties.
  - (3) Treatment in factory:—
    - (a) Bleaching.
    - (b) Dyeing.
    - (c) Adulteration.
- (B) Characteristic of each fibre (lectures and laboratory work):
  - (1) Structure under the microscope.
  - (2) Chemical nature.
  - (3) Effect of chemicals on fibre:—
    - (a) Acids.
    - (b) Alkalies.
    - (c) Metallic salts.
    - (d) Bleaching powders.
    - (e) Dyes:—
      - I. Kinds:—Acid, basic, substantive, mordants, vegetable dyes, mineral dyes.
      - II. Testing fastness to perspiration, water, washing, crocking, fat solvents.
  - (4) Elasticity and tensile strength:—
    - (a) Native.
    - (b) As affected by manufacture.
    - (c) As affected by laundry processes.
  - (5) Hygroscopicity.
  - (6) Tests for adulteration.
- (C) Study of fabrics:—Fibre, weave, dye, adulteration.
- (D) Value of each fabric for use in clothing:
  - (1) Air retention.
  - (2) Water retention.
  - (3) Shrinkage in wearing and washing.
  - (4) Wearing or lasting quality.
  - (5) Relative cost.

(E) Historic use of fabrics for protection and ornament (lectures):
  (1) Beautiful fabrics of history:—
    (a) Design and color.
    (b) Use in dress and house decoration.
  (2) History of costume:—
    (a) Evolution of dress.
    (b) Cyclic character of fashion.
    (c) Economic and industrial phases of fashion change.

IV. Selection and Manufacture of Clothing: (laboratory work)
  (A) Manufacture of clothing:—
    (1) Ready to wear clothing — Factory system. Sweat shop system. Consumer's league. Child labor laws.
    (2) Home made clothing.
    (3) Modiste or tailor made clothing.
  (B) Relative cost of home made, tailor made, and ready to wear clothing.
  (C) Cost of clothing for a year:
    (1) Low.
    (2) Medium.
    (3) Luxury.
  (D) Design applied to dress (lectures):—
    (1) Measure harmony:—
      (a) In human figure.
      (b) In parts of garments.
      (c) Between parts of costume.
    (2) Essentials of a beautiful gown:—
      (a) Proportion and line.
      (b) Beauty of material.
      (c) Excellence of workmanship.
    (3) Appropriateness in gowns:—
      (a) Suited to individuality (should express the wearer).
      (b) Suited to color of hair, eyes, skin, etc.
      (c) Suited to the occasion.
    (4) Designing of costumes (laboratory work).

V. Arts and Crafts Movement:—
  (A) Design for weaving, stenciling, block printing on useful articles.
  (B) Practice in weaving, stenciling, block printing.
  (C) Practice in dyeing:—
    (1) One color.
    (2) Tied design.
    (3) Batiek.
    (4) Bleaching designs.

Under the term "applied art" the following work is offered in some of the institutions: Weaving, basketry, stenciling, block printing, dyeing, embroidering, lace making, crocheting, knitting, netting, hand sewing, modeling, pottery, leather work, hammered work in metal, enameling, jewelry, bookbinding, and house decoration. Some of these subjects were offered under the name of "domestic art," some were offered under the name of "applied art" in the art department, and some were offered under the name of "manual training." Many of them were seemingly given without any definite previous training in design.

If we as instructors are to help in raising the art appreciation of the educated people of the country, we must insist that there shall not only be lectures on the historic phases of art, but also laboratory courses in design preceding any application of design in textile work or house decoration. There should be courses offered in experimental psychology which will make the laws of beauty more nearly clear. Such courses will emphasize the value of line and space relation and color, and change the teaching from arbitrary statements, showing the individual preference of the lecturer, to the presentation of the fundamental principles which under lie all appreciation of beauty.

The following recommendation as to prerequisites and general subjects for lecture and laboratory work is presented with the idea that it will at least give a basis for more nearly uniform work to be presented under the name of "textiles."

Prerequisites required:
  Art and design, chemistry.
Additional prerequisites suggested:—
  Botany, economics, sewing (without college credit).
Lecture work:—
  Historical, economic, chemical, hygienic, artistic study of textiles.
Laboratory work in textiles:—
  Microscopic examinations.
  Chemical tests for composition and adulterations.
  Reaction to acids, alkalies, salts, and dyes in the processes of manufacture.
  Study of dyes in their effect upon textile fibres.
  Study of laundry problems as they affect the various textiles.
  Study of hygienic problems under the headings of air retention, moisture retention, and heat retention.
  Effect of the color of the fabric upon the individual.
  Study of artistic problems under the subject of applied design in weaving, stenciling, block printing, and dyeing.

The following is suggested as a sequence course in textiles and applied art:

I. Art and Design:
   Lecture and laboratory work offering at least 3 credits toward graduation.
II. Textiles:
   Lecture and laboratory work offering at least 4 credits toward graduation.
III. Manufacture and Selection of Clothing.
   Lecture and laboratory work offering at least 5 credits toward graduation.
IV. House Decoration:
   Lecture and laboratory work offering at least 4 credits toward graduation.
V. Household Management:
   (1) Purchase of material.
   (2) Cleaning of material.
   (3) Preservation of material.
   Lecture and laboratory work offering at least 3 credits toward graduation.

The subject of theses in textile study and applied art in textiles is one that should be developed much more than it is. The field is comparatively unworked, in fact it is very difficult to find definite and authoritative material except in very technical form in print to-day. The undergraduate thesis may well include experimentation along the line of composition, adulteration, and economic problems.

The following theses are reported from the various institutions:

Ohio State University:—
(1) Study of Standard Wool and Silk Fabrics.
(2) Furnishing a Given Home on a Small Amount of Money: (a) in Good Taste, (b) in Bad Taste.

South Dakota State College:
(1) Selection and Cost of House Furnishing under Specified Conditions.

University of Wisconsin:
(1) Adulterations in Silk Fabrics Found in the Open Market.
(2) Effect of Washing Compounds on Tensile Strength of Cotton and Linen Fabrics—A Study in Methods.
(3) The Effect upon the Ultimate Consumer of the Present Schedule "K" (Tariff on Wool).

If the various universities and colleges unite in doing research work along the lines blazed by Miss Nellie Crooks while studying at Teachers College, we shall have eventually a body of knowledge that will be of benefit not only to the teaching profession, but to everyone. The textile problem requires as much study and unfortunately as much legislation as does the pure food problem. The Home Economics departments are in a position to aid very materially in this work.

THE CONTENT OF A COLLEGE COURSE IN TEXTILES FOR THE TRAINING OF TEACHERS, AND ITS APPLICATION IN THE LOWER SCHOOLS.[1]

NELLIE CROOKS.

Milwaukee-Downer College.

Much of the teaching of domestic art in elementary and high schools has for a long time been narrow and formal. This condition has been largely due to the teacher's lack of knowledge of the principles that underlie the work. In many of the courses for the training of teachers in domestic art, perfection in technique is considered the only thing of value. For this reason technical skill has been demanded of the pupils. Yet the fact that children as well as adults are consumers makes a necessity of teaching standards of living and the spending of money in the grades and high schools as well as in the colleges. These, when taught with the lessons in domestic art, give the whole subject a broader and more living value. The study of the subject of textiles should supply a large part of the thought content of all this work.

As I have studied the catalogs of colleges, high schools and e ementary schools, I have found many and various activities included under the word "textiles." The study of fabrics, the cost of materials, sewing, dress-making, millinery, basketry, all are included under the magic word. A course in textiles has been used to cover such a large and indefinite field of instruction that it is difficult to tell what really is included in the subject. I shall use the term to include the study of all fibres and woven goods produced from them, considered from the point of view of the consumer.

The object of a course in textiles for teachers should be to give a basis for constructive work in domestic art in the elementary and

[1]Presented at the St. Louis Meeting of the American Home Economics Association, December, 1910. The tests shown in the illustrations were made at Teachers College, Columbia University, by Miss Crooks. Illustrations reproduced from *Harper's Weekly* by permission.

secondary schools, not for the training of any individual artistic gifts. The latter, to be sure, has its place, but it belongs to the study of arts and crafts, rather than in a course in textiles. Many courses place so much emphasis on the purely artistic and mechanical side of the work that the student gets no grasp of the subject as a whole. Some knowledge of weaving is necessary, but hours spent in weaving intricate patterns can give only mechanical skill, and unless followed by study of fibre and materials are not sufficient to train the teacher for her future work. The same is true of extensive work in dyeing. Unless the student can study the dyes as to fastness to light, durability, and their other economic values, the result of the work has artistic value only. The teacher must have a comprehensive knowledge of the raw fibres and the processes used in making fabrics in order to be able to judge the finished product. Is it not time that we consider true thrift consists in spending wisely as well as in saving? Women are the spenders of money, yet how little is taught of the relative values of materials or of the condition of labor for which they are responsible by their demand for cheap showy goods.

The study of textiles should be used as a basis for all the work in domestic arts that is included under the terms sewing, millinery, and dress-making. These subjects should teach the application of all textile principles, but they usually deal only with the manipulation of material. I hope to show that the study of textiles itself has enough scientific and economic basis to be not an adjunct but a fundamental part of Home Economics and that the subject matter can not be furnished by any other study. Let us consider: (1) The content of a course in textiles in college, and the fundamental principles and standards that should be expected in a teacher of these subjects in the lower schools; (2) the application of these facts and principles to courses in the lower schools.

Certain pre-requisites are required for this college course. There should be a year of practical work in chemistry and enough history to furnish a background. A course in economics should if possible precede or accompany it.

The field is so vast that in every college course some one phase of the work is especially emphasized. For convenience we may divide the study of textiles into the following four groups: (1) Historic, (2) artistic, (3) hygienic, (4) economic. In the early part of the college work which I shall try to outline, economic principles are emphasized both in the reference reading and the experimental work. We

begin by tracing the industries from primitive conditions, and the development of civilization as expressed by hand work. This we find illustrated by the rude shelter of woven branches which was the beginning of weaving, and the struggle of primitive people to obtain the necessities of life, as food, shelter, and clothing. We trace briefly the evolution of the home; the change from a wandering to a settled life as it affected the lives of women; the gradual progress of the industries and the change this made in the life of the people; and the development of the loom and the materials that were first used for clothing. While we study the place of woman in early civilization and her struggle with adverse circumstances, we try before we complete this part of the work to bury the primitive woman, that specter that has haunted Home Economics for so many years.

We trace the evolution of the industries through trade and barter; the differentiation of producer and consumer; the corresponding distribution and localization of different trades and industries; and the organization of the industries through the guilds. Parallel with this is the development of the life of women and children in the home. We include also the economic independence of isolated people, such as the American colonists, and the larger significance of the fact even in so political a matter as the American Revolution. To illustrate this point we have only to remember the influence of the ability of women to spin and weave in colonial times. This enabled them at the time of the Revolution to supply the pressing needs of the army. The well known account of the woman and her daughter in Massachusetts, who in twenty-four hours sheared a sheep, washed, spun, and wove the wool, and made a suit of clothes for the boy to wear to fight for liberty, illustrates this point.

The course also includes the industrial revolution, as brought about by inventions; the economic changes, notably the transfer of women's work from the home to the factory; and the textile inventions that were largely instrumental in bringing about this change and the establishment of the factory system. The lives of the inventors furnish much that will be of interest later.

Turning now from the evolution of the household industries to the raw material, we come to the general classification of fibres used in the textile industry. These group themselves under the heads of animal, vegetable, mineral, and artificial fibres. These classes are distinguished first by chemical and microscopic tests and their general characteristics noted. We then take up the separate study of wool,

silk, cotton, and flax. In order to illustrate we will consider a few of the points taken up in the study of wool.

The chemical and microscopic study of wool is more intensive, for the aim is to make the work an accurate basis for future tests in cloth adulteration. When I first took up the work in adulteration in textiles few books were written on the subject, but now there are a number of works that the student can consult. But care and time is necessary in the laboratory work to obtain results that will be of any value. We study different kinds of wool and hair in order to distinguish perfect and imperfect fibres. The consumer who believes he is receiving all wool when he makes his purchase needs to be convinced by actual tests that it is possible that his purchase, in spite of a fair exterior, may contain only a small percentage of wool. To show this, accurate and exact knowledge of the fibres must be obtained by the student in the laboratory.

The study of the manufacture of wool and worsted goods in colonial times is made a basis for the study of factory-made materials. Intricate problems of machinery are not entered into but only touched on. Mills are visited and the principal processes of making the yarn and weaving are observed and afterwards discussed in class. Simple checks, stripes and twills are designed and woven by the students.

Having gained this knowledge of the manufacture of wool materials, the student has a foundation for judging different qualities of materials. In order to know more fully what constitute good materials and to be able to judge by sight and touch, comparisons are made and judgments formed which will be of value when shopping.

The tests are divided into two general classes, those that can be used when shopping and those that have to be made at home or in the laboratory. In order to aid the future shopper, yard pieces of a great variety of wool and worsted goods are seen and handled, for example serges from 75 cents to $2.50 a yard, broadcloths, and cheviots, of different prices and of foreign and domestic make. Small samples are of little use in this work, as the pieces must be sufficiently large for the student to get the "feel" of the goods.

The difference between linen and cotton is always difficult to determine. A few of the simple tests are: (1) Tearing the material and comparing the frayed edges; (2) burning the threads, reducing them to ashes and comparing the results; (3) using ink, in which a difference of capillary attraction is noted, due to the wax having been removed from the cotton, and the fibrous structure of flax; and (4) applying

glycerin, when the cotton remains opaque and the linen becomes translucent.

The laboratory tests of woven goods may be as various as time permits, embracing tests for durability, dyes and analysis of all kinds of woolen fabrics, with as much quantitative work as desired. As silk is the most expensive raw fibre it is more subject to adulteration than any other. The most common methods are to mix it with cotton or ramie and actually to weight the silk threads with sugar, starch, or mineral salts. Most of this weighting is in the weft as the warp has to stand the greater strain in the weaving. The little pinholes that come so suddenly and unexpectedly in new silk skirts, we all know. These holes are first seen when the goods are held to the light and are generally caused by the metal salts used in weighting the silk. The small particles of salt used adhere to threads of the silk; when the threads rub against one another the roughness of the adhering salt makes them break. Mercerized cotton looks so like silk under the microscope that cuprammonia has to be used to bring the twist back to the cotton fibres.

Very much of the same course of work as that outlined for wool is followed with every other fibre. The artistic and historic study of each fibre is also considered in detail. When time allows it, quantitative work is taken up in the laboratory, and what revelations are made! Table linen, towels, and other goods marked linen, are found to have a large percentage of cotton. The students bring their own material as much as possible for these tests. Through all this study, the economic side of the question, as seen by the consumer, is taken up, even the intricacies of Schedule "K" being touched on in order to show the relation of the consumer towards our much protected wool industry.

On the hygienic side, experiments are made to test the different absorbent powers of wool, cotton, silk, flax, in reference to the choice of materials for underclothing. The subject of healthful and appropriate dress is made the basis for much discussion. Throughout the course, stereopticon lectures are used to illustrate the points taken up; visits to factories and stores; and a complete exhibit of materials, both before and after they have been subjected to wear, is used as a ground for comparison, and as a basis for the last part of the work.

The division of income, estimating the cost of clothing for individuals and families, and the application of the principles learned in the course in planning the equipping of a home with materials that will

wear the best, at the smallest cost, completes the work. We spend much time in studying the wearing qualities of carpets, rugs, etc., the prices of the different kinds of curtains, and the relative merits of net, scrim, and lace.

In the purchasing of table linen much depends on the judgment of the buyer. As there are now so many ways of adulterating this class of goods, we take the subject up in detail. We are greatly aided by the careful records and samples of table linen and towels kept by the matron of one of our halls. These cover different kinds of table linen that have been used, the effect of constant laundering, the question of plain linen versus pattern cloth, and most important of all, the difference in wearing value, as shown by a slight difference in price per yard. This will be of value not only for the teacher and the matron of an institution but for the home maker.

Having thus briefly sketched the body of knowledge upon which a textile course in college is founded, let us see how this knowledge can be applied in the elementary and high schools as a basis for domestic art work. In the sewing in the lower grades, the study of each material that the child is working on gives an added interest, and should be a fundamental part of the work. This may be taught at the beginning of the lesson by illustrative materials, pictures, etc., and the children should make collections of materials, with prices, learning the relative prices and values of different fabrics. Or the study may be approached through the industries in the constructive work of weaving. The work may be correlated with the other work in the grades by the raising of flax and cotton in connection with nature study.

The problem of how the work should be presented in the elementary schools rests after all with the individual school, but if the teacher knows the content of her subject the application can be made as best suits her particular needs. In the high school, the work in dyeing and testing materials may form part of the chemistry course; but in whatever way the work is given, a thorough knowledge of materials should form a basis for all the work in sewing, dress-making and millinery. In dress-making, the selection of material is fundamental and vital. Judgment is required to select material that will have the best wearing qualities, fastest dyes, and be best adapted to the needs of the purchaser. In wash goods, comparative experiments in shrinking, fastness of color, and exposure to the sun and light would be a great help to many who have little money to spend.

In the matter of dress trimmings, we find special need of teaching values in purchasing embroideries, laces and bands, so that the purchaser knows the wearing qualities of her goods and how to obtain the best results from the least expenditure of money. How dependent the student is on the knowledge of her teacher was impressed on my mind when visiting a large technical school in New York. The graduating class of girls from a very poor locality were making their dresses and while their stitches were fine and even, what of the materials? Embroidery at $1.75 a yard and lace at nearly the same price. From the general appearance of the students, I could only think that the money must have been expended at a cost of the necessities of life, not only for themselves but at great sacrifices made by their parents. Is there any practical or ethical value in such instruction, and was it not caused by the teacher's limited understanding of the scope of the subject?

A course in millinery should include the study of velvet, silks and braids, the necessary tests for these materials, the renovating of material, and the removal of stains without injury to the fabric. Some work in weaving is often given, but the question of time always limits the work.

No matter from what condition of life the student comes or what her future may be, she will be a spender of money as well as a producer. In order that she may save, we teach her to patch, darn, make dresses and hats at the least possible expense; but of what use is this if we do not teach her how to select and buy the material on which she works? Ready made clothing will consume much of her income; should there not be standards of judging this as well as the numerous other materials which must pass through her hands?

Shall we not then educate our students so that the term "practical" may mean something more than immediate? May not the larger view of the standards of living and the responsibility of the consumer be made as real and personal a part of the work as the immediate results which are achieved by the student?

TEXTILE EXPERIMENTATION.[1]

AGNES HOUSTON CRAIG.

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It is not the purpose of this paper to set forth the technique of textile experimentation, but rather to suggest and discuss its significance and scope as pre-requisite to the highest accomplishment in all aggregated courses of household art, and as fundamental in the complicated problem of standardizing household economy.

Before standardization can be achieved in the ultimate problem of the home, each factor involved must be recognized, and its relative significance determined. Up to the present time food analysis and preparation have been most intensively investigated by students of Home Economics, to the neglect of other essentials, but recently inherent merit has been establishing the just claim of the textile interest with its composite inheritance of historic, scientific, aesthetic, economic, practical, and ethical values, until we are forced to acknowledge it, not as an adjunct but as fundamental to the Home Economics superstructure we are struggling to erect.

Concerning the use of the income, there are two fundamental ideas that cannot be too much stressed. The spender must know how to choose with a view to securing the worth of her money in furnishings, equipment, and supplies; and she must be able to recognize the causes and avenues of waste. The realization of these conditions depends on first, the exercise of scientific judgment in determining the appropriateness, aesthetic value, and durability of the article to be selected; and secondly, the practice of scientific management in its use and care, based on well organized information and established method as a means of controlling waste of money, nervous and muscular energy, time, and commodities.

It is not an exaggeration to state that perhaps the greatest source of waste attributable to one cause may be found in the lack of scien-

[1]Presented at the St. Louis meeting of the American Home Economics Association, December 1910.

tific judgment displayed in the purchase, use, and preservation of various kinds of textiles used for house furnishing and clothing. Yet a logically established knowledge of certain artistic, scientific, and economic laws, in the minds of consumers, would soon revolutionize the production and consumption of textile fabrics.

Through personal experimentation and as a result of observation relative to general methods used in the teaching of that group of textile subjects commonly classed under domestic art, I do not hesitate to declare that in the majority of cases it is being taught in a mechanical, amateurish, and uneducational manner. It is the old story of the cart being put before the horse, resulting in the prevailing condition that too much time is wastefully expended on the technique of sewing, chiefly because the average student is forced to attempt expression before she has acquired fundamental and inspirational knowledge. After all, efficiency through mental development is paramount, and technical skill should be a result rather than a process of instruction. A broad and general knowledge such as develops a critical and receptive aptitude for the science or art in hand should precede or at least parallel training in technical proficiency.

Textile study should be approached historically.

One of the surest methods of arousing interest in any specific subject is by presenting historical facts closely related to it. Human history is the record of the development of the inventive faculty, and the history of invention is the history of intellectual evolution. In this evolution textile fabrics have been constantly and closely identified with both the origin and the development of mechanical invention until today they constitute a vital economic factor in many of the modern problems affecting the cost of living.

With this historic setting the scientific content of textile study offers a rich field for experimentation.

Not long ago I had the pleasure of reading an interesting outline of chemistry courses and their relation to food investigation in connection with Home Economics as it is taught in a well known institution. The writer made the following statement:[1]

> All students of Home Economics who are candidates for degrees take the course in general inorganic chemistry. . . . Those who have proved themselves capable of winning their way in science and who show an interest in scientific things are encouraged to make the best of their capabilities in an extended study of chem-

[1] *J. Home Economics*. 2 (1910), No. 4, p. 399.

istry (relating to food investigation). Those who have not shown such interest but who have satisfied the requirements in chemistry for the first year pursue work in decoration, design, sewing, and similar subjects.

It is this very attitude toward that body of subject matter embodied in textile art that forces me to take issue with such a statement. Distinguished work in this type of "decoration, design, sewing, and similar subjects" depends quite as much upon a thorough basic preparation in chemistry, physics, and the biological sciences as does the subject matter of domestic science, so that educators interested in the problem of the standardization of the home are working in vain for satisfactory results so long as they ignore this phase of household economy.

It is not only the tendency of incapable students to elect domestic art because of the prevailing impression that scholarship is non-essential to it, but teachers who should know better encourage them to do so. So long as this attitude is countenanced and practiced, mediocre results will cause school boards to continue voting this phase of Home Economics a failure.

In dealing with students taking this group of industrial courses, I find them particularly deficient along the following lines:

(1) They lack the power of concentration; (2) logical thinking is unknown to them, because their reasoning powers have not been properly trained; (3) they are barren of ideas and have no conception of how independently to attack a problem.

With such a lack of the essentials to expression in any form, how can we expect reactions in the form of technical proficiency? As remedial to this condition, every student of Home Economics should have in connection with textile work, foundation work in inorganic chemistry, organic chemistry, physics, and biology, at least for the training they give in establishing habits of accurate observation and of independent and logical thinking under critical observation and because of the many close relationships of these subjects to the production and practical every-day use of textiles in the home, in the arts, and in manufactures.

In the biological field elementary botany may be followed by courses many phases of which are closely identified with textile interests, such as the following:

(1) Economic Botany:—Dealing with commercially important plant products and their utilization in various industries, and with the laws determining their distribution in culture.

(2) Bacteriology:—In its relation to industry, morphology, taxonomy, physiology of bacteria, bacteriological analysis, etc.

(3) Physiology, Hygiene, Pathology:—Considering the relation of clothing to the structure and functioning of the human body, their detrimental or favorable relation to circulation, respiration, preservation of animal heat, absorption, secretions, excretions, nervous energy, skin ventilation, infection, and disinfection.

This class of knowledge will establish a reliable basis for scientific judgment concerning (1) general health requirements and conditions; (2) problems of pathological sanitation; (3) thermic properties of clothing; (4) the infection and sterilization of clothing and textile furnishings; (5) clothing as a factor in producing fatigue, through (a) weight, (b) restricting skin ventilation and circulation, and (c) color psychology; and (6) relation of fibres and texture to regulation of bodily temperature, suitable cold weather fabrics, suitable warm weather fabrics, and basing the selection of clothing on the requirements of age, occupation, and condition of health.

The physical sciences also offer a wide department of practical investigation that will be of value in determining fibre characteristics, chemical reactions, and the best methods of treatment where fabrics are subjected to such conditions as dyeing, laundering, and dry cleaning.

In chemistry stress may be put on:

(1) Agricultural and commercial phases.

(2) Qualitative analysis, including fibre tests, determination of comparative characteristics, identification of adulterations, sizings, mordants, etc.

(3) Quantitative analysis of different types of fibres, mixed fabrics, shrinkage of different varieties, tests for tensile strength, moisture in raw and manufactured fibres, relative capacity of fibres for holding dyes.

One of the most valuable phases of the chemical study of textiles is that pertaining to dye-stuffs. In laundering, which is unquestionably a textile subject, such fundamental chemical knowledge would greatly modify one of the most alarming forms of waste in the household. Under this head would be considered among other things, the following:

(1) Bleaching agents, soaps, oils, mordants, and typical cleansing processes with reference to their effect on the various classes of fibres and dyes.

(2) Dye stuffs:—raw pigment and color harmony, classes of dyes, susceptibility of fibres to absorb color; solubility; reaction with alkalis, acids, metallic salts, and tannin reagents; chemical reaction of dyestuffs on physical structure of fibres; colorimetric experiments; etc.

In physics special stress should be put on the study of heat radiation and light. The physics of color is most important and in view of the very interesting investigations that are being carried on in the general subject of color too thorough ground work cannot be established.

This subject of color naturally suggests the next phase of our general topic, namely, the aesthetic consideration in textile study. Within this field there are two essentials that cannot be strongly enough emphasized as significant factors of household art and which are also important features of economy. They are most essential and indispensable requisites to success in textile work. I refer to the following:

(1) Proficiency in free hand drawing and a working knowledge of the principles of design.

(a) All constructive expression, whether it be literary, musical, dramatic, architectural, pictorial, landscape gardening, costumic, etc., should conform to the three principles of order and beauty, viz. harmony, balance, and rhythm.

(b) In connection with these principles there are certain laws of composition that should be appreciated and to some extent understood by the student before serious constructive expression is attempted. These are the laws of appropriateness, principality, subordination, repetition, variety, and unity.

(2) There should also be thorough training in the art of color relative to the meaning of hue, value, chroma, contrast, harmony, and texture; ability to show some skill in mixing and combining colors; familiarity with the simple principles of the aesthetic theory in its relation to form and color; and the psychological significance of rhythm, color, tonal fusion, and symmetry.

In connection with this art study the previous parallel work in physics and chemistry will be invaluable.

Although many of us are accustomed to thinking of the aesthetic as non-essential to our everyday activities, brief study and investigation will soon prove that it is an important economic element. Economy value should be the basic idea of all these interests so that practical economy may be rationally applied to all these kinds of home furnishing, clothing and management.

In connection with this economic study textile fabrics should be investigated as a feature of political economy. Relative to the supply of raw materials, their manufacture, and the labor problems involved, this subject occupies an important place in the field of production. From its more general consideration in political economy, consumption as it is related to the department of Home Economics will furnish a fruitful field for study and experiment in the following interests:—

(1) Money economy in connection with the individual income. In this connection consideration would be given to original cost of fabrics; relative differences in cost depending on comparative durability of the fabrics themselves, and of home made versus ready made furnishings and clothing; money involved in maintenance as it is affected by method or lack of method in management.

(2) Nervous and muscular energy as they are affected by clothing and surroundings and by management.

(3) Time economy in classroom and home activities.

(4) Economy in the use of commodities as affected by scientific judgment in selection, appropriate use, and preservation, through scientifically formulated processes of laundering, bleaching, dyeing, dry cleaning, etc.

With careful and logically arranged preparation in the foregoing fields of specialized knowledge which may and should be closely correlated, the practical technical or constructive work would not constitute the most important part of the industrial courses as it undoubtedly does in too many institutions, but would teach the best methods of construction so that students may express correctly original ideas resulting from purposeful thought that is firmly based on related and inspirational knowledge.

Within this department there should be sufficient experimental work with the manufacture of fabrics to establish expertness in the identification of standard materials. This may include microscopic examination of fabrics and constructive work that will result in familiarity with (a) weave formations and structure based on warp and woof; (b) the classification of weaves, derivative weaves, and weave combinations; (c) texture as modified by weave and color; (d) standard weaves and materials; (e) steps and processes in the manufacture of cotton, linen, wool and silk; (f) finishing processes; and (g) dyeing. There should also be considered the mechanics of construction, this including (a) hand sewing, plain and decorative; (b) machine sewing; (c) spinning and weaving; and (d) practical shopping.

The study of textiles in some such comprehensive and scientific method would undoubtedly dignify the course in domestic or household art. It would also develop a vital and practical field of research in physics, chemistry, and biology, and create the demand for a more definite standard in textile fabrics.

Each state university should establish and maintain a textile experimental station and practical demonstrations of the various phases of textiles should constitute an important department in all extension courses of Home Economics. At the same time textile manufacture should be legislated on just as has been food manufacture.

With regulating measures for the manufacturers, and practical education for the consumers, Professor Commons' score card may be used not only as a standardizer of the house, but also developed further and adapted to the measuring and grading of general home furnishings, textile equipment, and clothing. The ethical value of such training would be demonstrated through the popular appreciation of the principles of artistic expression in its relation to common things; through the popular exercise of scientific judgment in the expenditure of income for textiles and through the adoption of scientific method in management which would contribute much toward the elimination of waste, and mean greater average efficiency and resourcefulness.

Surely definite accomplishment in these fundamental problems will contribute much toward that consummation so much desired—the standardization of Home Economics.

SOME TEXTILE TESTS IN CONNECTION WITH THE CHILD WELFARE EXHIBIT.[1]

GRACE DENNY.

A Child Welfare Exhibit was held in New York City during January, 1911. Its purpose as stated by the committee was to "demonstrate the economy of concentrating efforts for human betterment upon the children of today." There were departments relating to (1) the health of children, (2) their recreational life, (3) their vocational adjustment, (4) their civic training, (5) their preparation for home making, and (6) their moral and spiritual development.

The relation of textiles to this great philanthropic movement may not at once be apparent. The subject has, however, a close connection with two of the important divisions—those of health and "homes." The latter includes housing, food, and clothing. It was the purpose of the committee to represent graphically the wise expenditure of the income of the typical family, basing the estimates upon More's Working Man's Budgets, and Chapin's Standards of Living. A family of five with $800 per year was chosen. Of this amount, but $100 was allotted for all the clothing for one year. The father's portion was $33, the mother's $25, and the three children, all under working age of whom the eldest is a boy, had to be clothed summer and winter for $42. Clothing for the children at different ages was shown, and as far as practicable, comparisons of ready-made garments attempted with those which could be made at home. Reasons for the choice of certain materials were pointed out. Pamphlets for free distribution gave simple and practical hints on how to shop, how to care for clothing, and why it pays to do so, with some essential facts on the hygiene of clothing and a few suggestions as to good taste in dress.

As a student of textiles in Teachers College, I was asked to test a number of fabrics from which selections were to be made for the clothing

[1]Presented at the St. Louis meeting of the American Home Economics Association, December 30, 1910. The work reported was carried on at Teachers College, Columbia University.

exhibit. The results of these investigations show a very limited portion of the field in textile analysis. In fact only a few inexpensive materials are represented in this group. Yet it furnishes an illustration of the practical value of textile study. The final selection of materials was not based upon the results of chemical tests alone, but included laundry and weathering experiments and certain physical tests, such as the determination of tensile strength in cottons. My work was done under the direction of Dr. H. T. Vulté, Professor of Household Chemistry, and with the help of Miss Ellen Beers of that department.

An assortment of samples from many so-called "woolen" materials was obtained by the textile committee from various places in New York City. Some of these were found on the push-carts in Orchard Street on the lower East Side; others at large and reputable but moderate-priced stores. The widths varied widely but the average cost was 50 cents per yard. The purpose of making chemical and microscopic tests on these materials was to find out first, the percentage of wool present; second, the way the cotton and wool were interwoven; and third, the quality of wool used.

The determination of cotton in the wool samples was made in the following way: Two pieces of equal size were taken to show a comparison of the original sample and the same after the wool had been removed. In case the material was found to be all wool, there was, of course, no residue. One of the samples was accurately weighed and then boiled in a 5 per cent solution of caustic potash for 15 minutes (which destroys all the wool). It was then rinsed in acidulated water, dried, reweighed, and the percentage of wool determined (allowing for a 5 per cent loss in the weight of cotton due to the slight action of the caustic potash on the cotton fabric).

The relation of cotton to wool in the cloth is often shown plainly by the form in which the cotton is left. If a piece of woven fabric remains, we know that either wool was mixed with the cotton in the yarn before weaving, or was blown into the cloth mechanically during the felting process and finished over to give the appearance of woolen material. Particles of wool used in this way are called "flocks" and, in the course of time, wear off the surface leaving the cotton background. The cheap eiderdowns represent a class of materials so poorly made that the wool wears off the surface in the same way. The cotton threads are sometimes left in a mass, showing that wool yarn was used only for the woof.

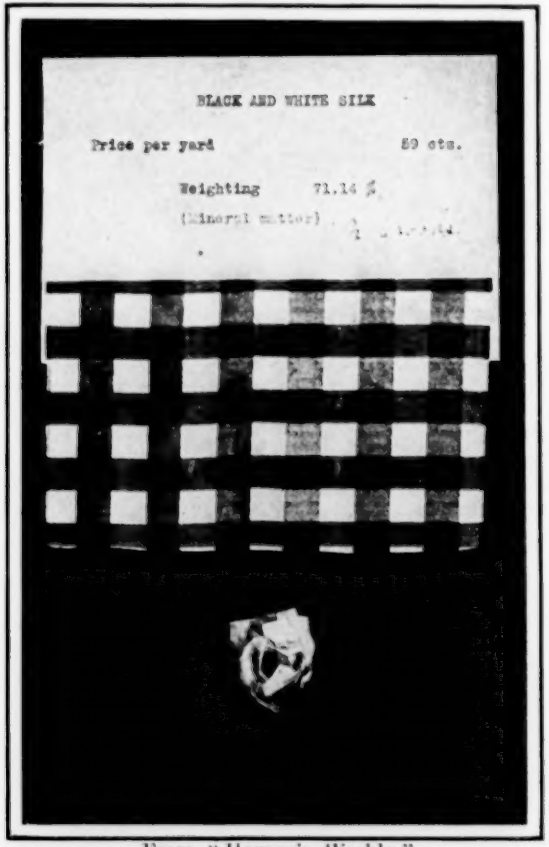
A sample of shepherd's check showed a cotton warp with every other check filled by cotton woof, thus practically but one-third wool.

These proofs were not accepted, however, as conclusive concerning the arrangement of cotton and wool. A microscopic examination was made of warp and woof threads in every instance to identify the fibres present. In addition to this an attractive color test was used on the white flannels. Fuchsin dye turns wool a deep pink, leaving the cotton white or nearly so. This is most effective when used on flannel having a cotton warp with wool filling.

The microscope made the most interesting revelations as to the ingredients in these materials. None contained first-class wool. Some showed good fibres mixed with inferior grades. The "all wool" pieces were made chiefly from shoddy or regenerated wool. This was indicated by the various sizes and grades of fibres, their tendency to curl, like cotton, and the inequality in dyeing. Many distorted or diseased fibres were noted and also those injured by extreme heat and severe treatment.

A number of cotton fabrics were tested as to the amount of finish or dressing present. Each piece was boiled for 15 minutes in a 5 per cent solution of oxalic acid, thoroughly washed and dried. Although this is not a laundry test, the results show very plainly the relative fastness of the dyes in ginghams, and something as to the wearing quality of the different materials. The purpose of the test is, of course, to determine how much of the weight and appearance of the fabric is due to finishing processes and how it will look when this effect has been destroyed by repeated washings and wear. A comparison of the original samples with those which have been "boiled out" indicates that those fabrics containing a large amount of stiffening and those having a finish applied after wearing, as the crepe effect on cheap cottons, do not have the body or firmness after the finish has been removed that one might expect.

In general the results of this examination of materials show that in buying dress goods for 50 cents per yard, one cannot have all wool or even good wool mixed with cotton. Something must be sacrificed. The textile committee found that it was a case of choosing "the lesser evil." The experiments also reveal something of the complexity of the textile problem. The variety of finishes employed on all kinds of cloth are deceiving even to one who has been studying the subject seriously. It is very difficult to make general conclusions until a



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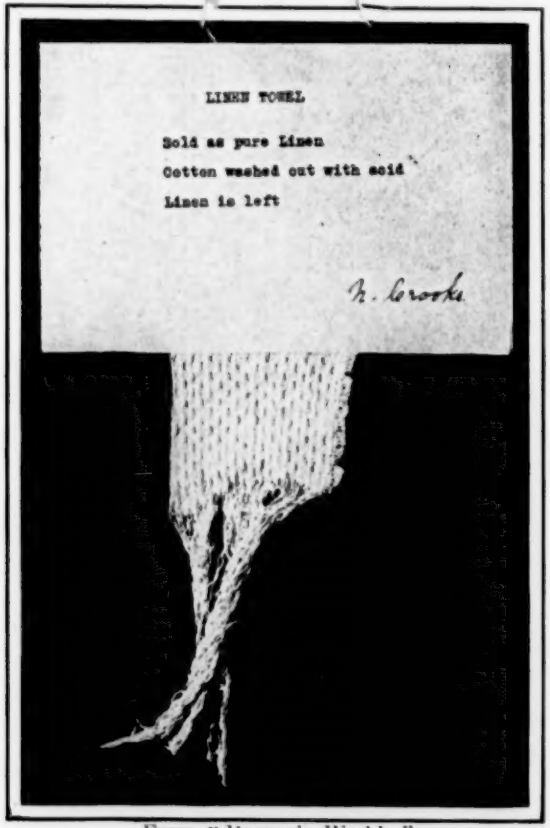
"Silk" Goods, with 71.14 Per Cent of Weighting.



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A "Linen" Towel, Tested to Show the Presence of Cotton.

greater body of information has been accumulated. Comparatively little has been done so far in this field. Sufficient results have been obtained, however, to demonstrate the need for thorough scientific investigation of the subject which shall lead ultimately to the establishment of certain textile standards in this country.

TEXTILE TESTING LABORATORY FOR THE UNITED STATES ARMY AT GOVERNOR'S ISLAND, N. Y.[1]

FLORENCE WINCHELL.

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Probably few of us have ever realized how much of the beauty of a marching army is due to the uniforms. For every man to be dressed identically seems at first thought to be a simple matter, but when one considers that some men's suits may have seen months of hard wear and others be practically new, yet the whole regiment still presents a single color, he realizes that the clever selection of materials is the secret of the uniform.

Hundreds of thousands of hats, overcoats, worksuits, suits of underwear, woolen and cotton socks, army blankets, all sorts of insignia for the officers of many ranks, tents, iron beds, mattresses, mosquito bars, and hosts of other essentials are supplied by the government for the use of the standing army. One phase of the problem is the need for absolute uniformity throughout the country.

This means clever and intelligent buying. The materials must be of very good quality and the tailoring well done. The suits supplied in California must be exactly like those for Florida. Old uniforms must present the same general appearance as new. Such buying cannot be done haphazard.

This exactness in uniforms demands that a standard for each article be established and that this standard be of such a grade that hard service and exposure to all sorts of weather will not change its appearance. The government has established centers for the drawing up of these many standards and the close examination of the materials supplied by the manufacturers.

For everything supplied to the army, specifications are drawn up by direction of the quartermaster-general, who is in charge of these

[1]Presented at the St. Louis Meeting of the American Home Economics Association, December, 1910.

stations. Every shipment received from the wholesaler must conform to these specifications. When any possible improvement is discovered, any material a little better suited to the needs, new specifications are drawn up and the old discarded.

On Governor's Island, just ten minutes' trip across the river from South Ferry, New York City, the government maintains a warehouse for the storage of army uniforms. Under the same roof is a station for testing the various materials supplied by the wholesale firms for overcoats and linings, work blouses and linings, work trousers, dress coats and linings, dress trousers and army blankets. Other materials are tested at other stations.

To follow one garment through its respective processes is the simplest way to understand how the uniforms are prepared for delivery. Let us take the olive drab kersey work blouse as an example.

A piece of kersey is selected. This must be heavy enough for warmth, not too hot nor too heavy to carry on the march, of such a quality of worsted that it will keep its shape and endure hard service, and must be so dyed that thousands of yards can be supplied without variation and that exposure to sun, rain, etc., will not change its tone. It must be unchanged by perspiration and washable in soap and water. The linings must be as carefully chosen, with mohair serge for the body part and silesia for the sleeves.

When such materials are found, the cut of the blouse must be decided upon. After the garment is well tailored according to the selected style, if it is satisfactory in all respects it may be used as a model.

Manufacturers soliciting contracts for the manufacture of the material are supplied with samples of the selected standard of kersey. They are also given copies of the specifications, to which this kersey is to conform. Once a manufacturer has taken a contract to supply such a quality of kersey, the station sends a representative to the mill to keep track of the contract. It is his duty to supply the contracting officer at the station with samples of the wool used in warp and filling in the clean state and also after mixed to the proper shade, as well as spun yarn for both warp and woof. These must be submitted with the first shipment of goods and with each 5000 yards following.

When the bolts of goods are delivered to the station they are examined according to the specifications, each bolt is weighed, measured as to the number of yards on the bolt, width of material, and the number of warp and woof threads to the inch. From each bolt a sample is

cut. This is used for the chemical tests and tests for tensile strength and weathering.

The chemical tests are solely for dye. Lactic acid and citric acid tests are used to test the dye for perspiration. To test for weathering, the sample is exposed flat on a roof for thirty days. The change should be practically imperceptible.

The dynamometer used for the strength test hangs upon the wall. Its two steel jaws which hold the sample in place are set exactly one inch apart. In testing the warp threads the sample is placed with the jaws set precisely parallel to the woof threads. The jaws are then slowly and steadily drawn apart by the turning of the wheel. The breaking point of the warp threads is automatically registered in pounds. The woof threads are tested in the same way. The specifications for this kersey state that the breaking point of both sets of threads should be at least 70 pounds.

Any requirements not actually mentioned in the specifications are to be taken from the standard sample. Materials supplied by the manufacturer are expected to fill all requirements of the specifications. Usually, these bolts of cloth are very attractive, so perfect in every respect, with no creases or folds, no spots of dye, no imperfections of weave. When materials are below standard the shipment is rejected. Such rejected shipments are sold for other uses. We should probably feel fortunate if we should buy them for they are probably much above those ordinarily supplied to us by a retailer.

The government does not maintain its own tailoring establishments, but supplies the contracting tailors with models and patterns for the desired lot. An officer usually takes the necessary materials to his own tailor but the enlisted men, unless of very unusual build, can be well fitted from stock since there are thirty-two different sizes and proportions from which to select. The tailored garments are again returned to this same station on Governor's Island. Here each garment is carefully examined for possible defects and then stored away in the warehouse, ready for shipment when needed.

Certainly no details are neglected in securing the most attractive and durable garments for the use of the United States army. The unscrupulous or indifferent wholesaler will always find his goods returned. He can supply the less intelligent consumer.

THE VALUE OF A COURSE IN HISTORIC COSTUME.[1]

JANE FALES.

Professor of Textiles and Clothing, Teachers College, Columbia University.

During all the years since household arts has been a part of our system of education, dressmaking has been generally conceded to be the most important technical subject in the domestic art course; yet its "art side" has been practically overlooked, or at best only slightly touched upon. If students of dressmaking have been taught drafting to measures, cutting, fitting, and finishing, the teacher has considered her duty to them done; and a dress might be adjudged technically satisfactory if these details were perfectly worked out, although appropriateness or artistic design were wholly lacking. A view at once broader educationally and more practical would demand, as a result, training in domestic art products which show not only technical perfection but also harmony in purpose and artistic design.

Recent unsuccessful attempts at originating or making fashions in America which could be called American, and the feeling of nearly all good dressmakers against the movement as shown by their continued use of designs made in Paris, should lead teachers vitally interested in improving methods and maintaining high standards to study the reasons for this and to answer two questions: (1) Why is the best dressmaking done in Paris? (2) What can they as teachers do to make American dressmakers more resourceful and artistically discriminating?

Even the slightest investigation shows that hand in hand with the cutting, fitting, and finishing of a costume must go two other requisites to produce what would be considered in Paris a successful result. These are first, a feeling for and knowledge of artistic design in dress, and second, originality.

The first includes a working knowledge of color-color combination, and its effect on the wearer; a consideration of line in relation to the figure, and the ways in which, by careful consideration of line and pro-

[1] Presented at the St. Louis meeting of the American Home Economic Association, December, 1910.

portion, one point may be accentuated and another concealed. All this can be achieved by courses in costume design, carried on in close connection with the dressmaking work. The interest shown in this appeal to artistic feeling, and the immediate response from the majority of the students, quickly proves the value of such courses.

The second necessary adjunct, which I have called originality, is far more difficult to achieve, and yet is of as great importance. The saying of a famous Frenchwoman is significant—"There is nothing new in this world but that which has grown old enough," and we must get the inspiration for our needed originality by studying not present day costume but that of bygone centuries. In America we have no past. Centuries of time, great revenues, and leisure for the appreciation of artistic pursuits, we have yet to attain, and while attaining we must look to other countries for those things which are "old enough."

Fortunately it is not necessary to study costumes of all countries, but only those which are best suited to our particular needs and which best furnish inspiration and stimulus because of their artistic merit. With limited time—and time is always limited in a college course where the list of requirements is fairly large, and the electives offered alluring—it seems best at present to confine such a course to a rather careful survey of the dress of the following nations: (1) Ancient Egypt, covering its three important dynasties; (2) Greece, when the wonderful art of that country was at its highest; (3) Rome, which shows chiefly a modification and degeneration of the Greek costume; (4) Ancient Gaul; (5) the Franks (these last three are important because from them came the elements out of which grew the beginnings of French costume); and (6) Modern France, from Merovingian days to the final establishment of the French Republic.

The costumes of these nations offer a great variety of designs, important for different purposes, but all of distinct value. For instance, from the study of Egyptian costume we get suggestions regarding richness of color and great variety in conventional design, especially useful in dress decoration; from the Grecian, grace and simplicity of line; while from the French we get more for costume than from any other country. Some periods are of greater importance than others. During the Renaissance the French revived the art of the classic age, selecting what was best and adapting it to their needs. Later they show us combinations and adaptations not only from Greece and Egypt

but from various other countries with which they came into political or social contact. Today the libraries of Paris contain wonderful collections of costume illustrations, old prints, old photographs, and old fashion sheets. These are for the use of the interested public, and to learn how greatly their value is appreciated, one has but to watch the designers of the great Paris houses constantly studying them with as much care and interest as the student of English literature gives to Chaucer or Browning.

From this careful study of bygone fashions our present-day styles are evolved. Costumes are generally not adopted as a whole, but adapted in part by designers skilled by constant practice in this work. Nothing is more interesting than to trace modern fashions back to the days of ancient Egypt, to the Middle Ages or to the Renaissance.

There is indeed "nothing new," and for the seeker there lies a vast field of resources, which being discovered add immeasurably to the capability of all who wish neither to study nor to teach dressmaking along the old lines, so long accepted and so severely critised.

How best to place at the disposal of the greatest number these resources is the present problem. A study of historic costume is not a simple matter, but requires patient research, and many hours spent in careful selection in order to get a sufficiently wide range of important and practical information. The sources of information are somewhat limited, and at present no simple text book exists. Histories of the ancient Egyptians, of the Greeks, of the Romans, of the Gauls and Franks must be carefully read, because many contain valuable hints or descriptions of costumes. Old engravings must be sought and studied; fashion sheets, which did not appear with any regularity until after the French Revolution, must be collected and examined. Various histories of costume must be read and compared. The historical text books are usually easy of access in public libraries; engravings and fashion sheets are expensive and hard to acquire, especially in America; and while there are many reference books, those of real value, such as Racinet's Le Costume Historique, are in French, with the exception of some that deal exclusively with English and American costume, and consequently are of little use to the average student of dressmaking. But the teacher who appeciates the value of this study, and who recognizes its significance in the development of the American dressmaking of the future, will find the way in spite of limitations and difficulties.

ART THE FOUNDATION OF DOMESTIC ART.[1]

LUA R. CRAWFORD.

Teacher of Art, Cleveland Technical High School.

All human beings exist both physically and spiritually. Uncivilized man demands more physically than he does spiritually. As he advances he asks more for the spirit. Civilized man not only strives for that which will keep the spark of life in his body but seeks for something that satisfies his soul.

Every civilized person has a longing for the beautiful, whether that beautiful be expressed as a kind act, a sunset, a couplet in verse, a song, a picture, a charming face, a harmoniously planned room, or a lovely bit of handiwork.

Beauty is a thing of the soul. Whenever an individual has produced a beautiful thing there has been growth and appreciation in his soul—and this is of infinitely more value to him than had he produced something which had no other excuse for being than that it served some necessary physical need. Kenyon Cox says, "We have come back to the old-time notion that one of the finest things art can do is to make some useful thing beautiful." Complex life demands many implements. If we build these implements of life so that they are beautiful as well as useful we have made them twice as valuable. The beautiful thing produced is the expression of the individual and whether the expression be conscious or not it has entered the realm of art.

We, who are interested in technical education, hope much for our boys and girls when we have brought them to the point where they can independently build pieces of furniture which will be strong and hold together—can make dresses that answer the purpose of clothing or cook dinners that satisfy hunger—but we will have done far more when we have led them to do all of these things as the expression of the individual in the most beautiful of ways.

[1] Presented at a joint meeting of the Household Arts Section of the North-Eastern Ohio Teachers' Association and the Ohio Chapter of the American Home Economics Association, Cleveland, O., Feb. 10, 1911.

This year a new course in art is being worked out here in the Cleveland Technical High School which correlates art and sewing (beauty and use). The majority of girls who come to this high school come from the average home. It is most probable that they will eventually marry and become home-makers. I believe that when in any way we can help these girls to live more sane, clean, and beautiful lives in their homes we have done just so much for the commonwealth.

Every girl ought to have a training in the principles of drawing if for no other reason than a cultural one. She ought to be able to draw and design and construct in a simple way. The principles so learned should be applied to problems in real life. The problems we are just now most interested in are those of domestic art which I make include sewing and house decoration and planning.

Along with the ability of the girl to draw and to design in connection with her domestic art, I place the ability to know and appreciate good things, those well and beautifully designed, for in all probability she will have as much, if not more, opportunity to exercise her judgment in the selection of wearing apparel and articles for the home, than in their actual designing.

The course as planned covers two years but should in my opinion be of four years' length. The first year of school, four periods a week (each period three quarters of an hour long) are allowed for sewing and six periods for the art. The reverse is allowed the second year.

As I have said before, we carry the training in pure art along with the training in art as applied to domestic art, and we hope to make the first of vital importance to the second.

The school year is divided into three quarters. The first quarter of the first year we begin with nature drawing, principally outline work. Most stress is laid on detail plant drawing because it is from the detail work that we get units of design which form the basis of the design work throughout the year. Here, it seems to me, we can lay the foundation for appreciation of beautiful lines which certainly has plenty of application later in the designing of dresses. Here also, we study color—its composition and harmony. From the fall plants we mal e color notes which can be used as color schemes later in the work of art and sewing.

The first problem of domestic art with which we directly deal is the design for the stitching of the holder.

Since the holder must be stitched why not have it done in a beau-

tiful way rather than otherwise? Why can we not learn the principles of good proportion in the breaking up of a square space as well here as anywhere? As the holder has a very definite use in the cooking room, is made in the sewing room, and designed in the art room, the work in three departments is connected. This same problem might be carried out further in other forms of domestic art, such as the planning of spaces in plaids, the arrangement of panels in a door, and the breaking up of a window space with panes of glass.

A sewing bag is next planned. This offers an opportunity for using our previously worked-out color schemes in the selection of materials for our bag. We construct mechanically a well proportioned ellipse for the base, plan the height of the bag and the proportion of the heading to the main portion of the bag.

The first year of sewing involves for the greater portion of the time the making of underwear. At the end of the first quarter the girls begin underwear designing. The first problem is the designing of the ruffle for the underdrawers. The width of the ruffle, 4 or 4½ inches finished, is given them as is also the lace width. Either ½ inch or ⅝ inch lace is allowed. We precede the work with a talk about laces—their kind, pattern, texture, wearing qualities, and suitableness to the garment they are to be used upon. The problem for the girls is first to select a suitable lace, and then to divide up the width of the ruffle into spaces that are properly proportioned one to the other. A thing is never beautiful unless it is so designed that it fits the service for which it is to be used. So we talk about where the decoration on the ruffle ought to be in order that the shirring at the top is not interfered with by its decoration. We also try to have our lace width, hem width, tuck width, width between tucks, and width of plain portion in the ruffle adjusted in an interesting way. I want the girls to feel the difference in the planning of tucks to form a cluster from tucks that are simply scattered over a surface.

The planning of the ruffle is followed by free-hand sketching of a pair of drawers. Not only is this for training in free-hand drawing but also for the purpose of getting into the child's mind the general form of the object. After this they make a small drawing of their own drawers, endeavoring to express their correct proportions.

This work it seems to me has great value. If we had more time I would like the girls to do considerable free-hand sketching of underwear and simple clothes on the black board as a means of expressing

quickly any ideas of such things they might wish to use in their work. The good designers in the French dressmaking shops have enough knowledge and skill in the drawing of dresses so that they can sit down and sketch for prospective customers clothes that will become them. In the same manner the good architect makes his perspective sketch of the house he has drawn the plans for. The psychologist claims a person never knows a thing definitely until he can express it in words. We think the child never knows how a garment will look until she has made a perspective sketch of it.

In the second quarter of the first year we begin the drawing of still life with charcoal. We study form, light and darkness, shade and shadow, perspective. This ought to form a good beginning for the sketching of the human figures which comes in the second year and is so necessary to the understanding of dress designing.

We commence the latter part of the second quarter to design for the corset cover. We make a drawing which is comparable to the mechanical drawing of the boys. On the drawing of the actual pattern cut according to the bust measure of each individual girl, she plans the division of spaces across both the front and back of her corset cover.

This is followed by drawing a corset cover on the form (the form three-quarters view) and then copying the corset cover drawings cut from the fashion magazine. In the drawing of the corset cover on the form we teach a little perspective of the figure and will lay a foundation for dress designing. We talk about the curves in waist lines—location of middle front on a figure, the curve at the top that fits over the shoulders and the ellipses of the arm hole. Copying from magazine drawings is valuable in several ways, particularly in that it acquaints the child with the technic of fashion plate drawings. She learns how tucks, shirring, stitching, etc., are expressed.

The last part of the first year the girls design a bit of embroidery for the yoke of the nightgown. As this is a suitable problem to teach rhythm—the flowing in of one line into another—we make this such an exercise.

The last problem in underwear is the petticoat. The girl first divides her whole skirt length into plain portion and flounce so each is proportionate to the other. After this the ruffle portion is broken up into spaces.

In the second year, a little figure sketching is introduced, not so much for the art side as for the help in dress design. I give standing

poses three-quarters turned because I wish the girls to get used to the figure in that position. The greatest proportion of dresses are designed on the turned figure.

The sewing of the second year consists of a seven-gored skirt, a shirt waist, and two dresses—the first a simple gingham and the second a wool dress or a thin summer dress—depending on the season of the year.

In all dress designing we use an outline drawing of a form suitable to the average high school girl, making slight changes to fit various figures. If we were working for figure drawing I would not think this an educational thing to do, but as dresses are our aim and the girls know so little about the human figure when they are ready to design their first dresses, I feel that the use of the under figure is perfectly legitimate. The girls design their dresses on rice paper, using this form underneath. If I had third and fourth year girls in art I should work them in to designing directly without this help.

Before doing anything in dress planning the girls need to understand how to express the hang of skirts naturally, tucks and pleats in the skirt and waists, the fall of seams over the hips, the fit of yokes over the shoulders, roundness in dress, the appearance of the decoration on sleeves, etc. If the girl applies her knowledge of perspective obtained in still-life drawing she will be much helped.

Before commencing dress designing many things ought to be considered, such as color in dress for certain individuals, for certain places, and certain occasions; the influence of horizontal and vertical lines on thin and stout people; texture and design in dress goods; line in dress; and the combination of dress and trimming for harmony.

We strive to have each girl have her own particular figure in view when designing her dress and selecting her material.

Dress designing is accompanied by the copying of dresses from fashion magazines for the purpose of technic, and the drawing of dresses upon the form—this for acquaintance with the line and hang of dress.

Next quarter we are to commence the designing of hats—this being the first time millinery has been offered. The girls will be given considerable work in the studying and planning of shapes of hats with their trimming to fit individual heads. The head and the hat must be considered a unit and each hat suitable to the individual.

Color schemes for hats will be worked out so that they will be in

harmony with the natural coloring of the girls, the clothes they will wear, and the occasions on which they are to be worn.

This concludes the two years' work. If the course were of four years' length—as I think it ought to be—a larger part of the last two years ought to be spent on problems concerning the home. In fact it seems to me that it is more important that we have beautiful homes than that we wear beautiful clothes, for our homes are the foundation of the land.

There is no reason why our high school girls should not know good design in dishes, silverware, table linens, furniture, wall paper, carpets, draperies, etc., or that they should not know how to put these things together according to the best principles of art to make beautiful rooms in which to live.

There is no reason why they should not draw up house plans—should not know how the rooms ought to be arranged one with the other—or no reason why they should not know how to plan a beautiful exterior to the house.

Thus we are working and will work with our girls here in the Technical High School and I feel we are going to prepare them in some measure, at least, to become good home makers and good home keepers.

ANALYSIS OF BLUES.[1]

L. Ray Balderston and Matilda J. McKeown.

Teachers College, Columbia University.

In our study, the analysis of blues has been considered from the practical as well as the chemical side. Blues most often purchased by the housewife were bought.

These blues were found to be of four types: Prussian, aniline, ultramarine and indigo. The liquid blues tested were all Prussian blues, while the ball or block blues were primarily ultramarines.

In analysis, the same amounts of blues were taken (1 gm. of solid, 10 cc. of liquid) and these were dissolved in 100 cc. of faucet water. The faucet water was used as the most practical side of the problem. After the blues were thoroughly dissolved in the water, the liquid

[1] Presented at the St. Louis meeting of the American Home Economics Association, December 30, 1910.

was filtered through balanced papers, all insoluble residue remaining on the paper. The filter papers were dried and the difference in weight represented the percentage of insoluble material or material not usable.

A second measured quantity was also dissolved in faucet water and sodium hydroxide added to precipitate any iron present. The iron would show as a heavy reddish brown precipitate. The sodium hydroxide solution was filtered and the residue washed with dilute hydrochloric acid (5 per cent). The iron was thus dissolved as a chloride leaving foreign material such as sand or clay in the filter paper. This test shows the percentage of foreign material, which is useless besides adding false weight.

The test for iron was made to identify those blues containing some iron compound. This identification is valuable to show those blues which, if used with clothes improperly rinsed, are likely to result in spotting with iron.

When the hydrochloric acid was added, hydrogen sulphid was given off in some cases, showing sodium sulphid to be present. This identified all ultramarine blues.

The solvent test was of interest from the chemical side in learning the chemical used to keep the blue in solution. In this test, the filtrate from the sodium hydroxide precipitation was treated with calcium chlorid plus acetic acid till acidified and ferric sulphate then added. If a jelly-like precipitate formed, oxalic acid was the solvent, but if the solution turned blue the solvent was potassium ferrocyanid.

All data from experiments were carefully recorded. The results were kept to be used as an exhibit for the classes in laundering, housewifery, household chemistry, and household management. The exhibit consisted of the filter papers holding their various residues, mounted between 5″ watch glasses and sealed.

Bottles of dilute blue solutions were added to show various tints and tones of blues.

By way of making the exhibit complete, the original bottles, boxes, or cans, were placed in the exhibit case.

ASPECTS OF ECONOMICS OF IMPORTANCE IN HOUSEHOLD SCIENCE.

DAVID KINLEY.

Professor of Economics, and Dean of Graduate School, University of Illinois.

I have agreed to give you an informal talk upon what we have been trying to do at the University of Illinois. If I say anything that is worth saying it will be along the line of our experience and practice there rather than to outline a scheme more or less ideal.

I have with me an outline of courses—not a paper, but merely an outline of courses as we have actually been giving them.

In the early days I took occasion to speak with Miss Bevier on this subject and urged that household economics as commonly taught occupied only a small portion of the field, and that many of its advocates had scarcely gotten a glimpse of the promised land of their subject. There is a large field in administration, as distinct from what is commonly spoken of as household economics. In order to get a comprehensive view of its possibilities we must take a study of the home in all its relations. To my mind the ordinary activities of the home—cooking, care of health, etc.—form an important part of the field but by no means the whole of the field. I think there is an administrative side as contrasted with the science side, and that this administrative side of the work has to do very largely with economics.

The things that you want to know are, what we have been working at and trying to get started in our household science on the side of administration. In the first place, I believe the young women who are studying household science ought to take a course in general economics. I regard it as a necessary foundaton. This consists of the work outlined in the usual text books such as Fetter's, Seager's, and Ely's, in combination with collateral readings two or three times a week. This with us is the work of the first half of the year. Following it is the particular part of the work for the students in household science. In this they come to the study of a particular type of organization, the family, which is approached by us as we approach

the study of any organization, such as a railroad or other corporation. We study a corporation as an independent unit, producing, exchanging, consuming; its independent economic activities, and its activities in relation to other units of different kinds. So we take up the study of the family and get at it from that point of view, along that line of reasoning. We begin with a résumé of the history and structure of the family. We consider the structure of the family historically, for purely academic reasons. That is a subject we need to treat carefully as it brings us to the alleged destruction or decay of the family. I am one of those who do not care whether the family as it exists today decays or not, in the ordinary sense; I regard a particular structure, or form, of the family as unimportant, so long as the spiritual essence of the family-relationship is maintained and perpetuated. In other words, the structure of the family is changing constantly. If however, the spiritual essence of its relationships remains, that is the important thing.

In studying the family as an economic unit we discuss the history of the family organization, the basis of relationship of the members of the family, the relation of women and children to the father, and the gradual decline of the power of the father; the recognized legal rights of wife and children as individual members of the family; the economic status of the members of the family historically and actually; the relations of the family as an organized unit to society, socially, economically and ethically; and, lastly, the effect of the economic independence of women and older children on the form of the family.

In considering family structure I may say in passing that my own point of view is that the structure is relative and temporary and that the spiritual relationships are the essence of the family. The evidence of this is found in the fact that the family assumes different forms throughout the world, and at different periods among the same people, although we find the spiritual essence of relationship very much the same the world over.

We then pass in our study to the more purely economic aspect of the family. From this point of view it is simply one form of business organization. We study the reaction of the present form of industry on family life as organized among us. A consideration of the economic advantages of a family income derived from the man's work only, as compared with that derived from his work plus that derived from the work of his wife and children, leads us, among other things, to

the subject of child labor and the employment of women, particularly of mothers, and the influences of away-from-home work on the family, both on the mother and the children. Closely connected with this topic is that of the economic independence of women.

In considering the family as a producing unit we find that there is a great deal that is erroneous in our ordinary estimates of economic wealth, a great deal of the productive activity of women that is not taken account of. The work of the mother of the family and the young women at home is not recorded in the census, for example; but if they should go out into another family and do the same work, it would be recorded.

Consequently, it is necessary to study the nature of the product of the economic activity of the family; that is to say, the nature of the work out of which the family income is derived. The income is partly money, partly material goods directly produced and consumed, and to a great extent services. We see in our study that the income of the family is material and non-material and that the material part consists of money and of goods. This leads us to the study of the relative importance from an economic standpoint of the activity of the members of the family, the income of the father, the income produced by the children, most of which is a money income, and the influence of money economy on the productive organization of the family. At this point I bring into the course, and it seems entirely proper, an incidental study of some domestic industry; some students devoting themselves to the study of the arts and crafts, some to the production of artistic needle work or lace work, etc., so that each year reports are made showing the development of some form of home industry in which the student has become interested.

Then we consider the family as a consuming unit. Our study of this portion of our field is based on Professor Patten's Theory of Consumption, with special reference to the reaction of economic forces and motives on diet schedules constructed on physiological and chemical bases. Here we take up the laws of individual consumption, the laws of diminishing utility, harmony and variety.

I have had some young women—Miss Bevier perhaps does not know this—come over to me with a list of things which they claimed formed a perfect unit of diet; at any rate, there is no doubt that there was a harmonious total, sufficient in amount and perfect in the proportions of physiological and chemical elements. "But," I said to

the girls, "I could not eat those things;" or, "I could not afford to get them;" or "I do not like them." I wanted to show them the importance of taking into consideration the economic and psychological limitations of diet schedules and that these should be reckoned with in framing them.

Towards the close of our treatment of the family as a business unit, we take a hotel or an institution as a model for study, it being the nearest that we can get to illustrate the economic organization and activity of the family. The students take it in a simple form and later expand it, making diagrams showing the various forms and ramifications of activities and finding out wherein it differs from the ordinary family,—what things we have to add and what we have to take from an ordinary large boarding house in order to turn it into a typical family.

In connection with consumption we proceed to the very delicate subject (to most of us) of family expenditure, its classification, purposes, methods, relation to income, and household budgets. For this study the girls procure the accounts of sororities, boarding houses, and restaurants, as well as the budgets of individual students.

After considering the laws of individual consumption we ordinarily take up for brief study the possibility of increasing social consumption, or the consumption of the family as a unit; for I take it that there is a social consumption in the true sense of the word. That is to say, the family as a unit consumes certain things. These are chiefly what may be called esthetic goods or values. Several people may sit in that little room in Dresden in which is hung Raphael's great masterpiece, "consuming" the picture simultaneously. It is in this sense that I use the phrase "social consumption." There is, too, what may be called social use of municipal and other public utilities like parks, museums, galleries, etc., the "values" of whose collections are abstracted or consumed by more than one person at the same time. There is a great deal of the esthetic and ethical in family activity that belong to this category; and a discussion of the topic takes us into some of the innermost recesses of family life.

Following the study of family income and expenditure and closely connected with them, we enter upon a discussion of local markets, market organization, wholesale and retail buying, tables of prices, etc.

At the end of the course we discuss the "family in the community" —that is, as one of the social organizations going to make up society

in the sense with the church, the school, and other organizations. We inquire into the relation of the family to these other social units, its duties and rights in connection with them, and the reaction between it and them. For example, the educational function of the family has been very much modified by the public schools on the one hand and in religious training by the Sunday Schools on the other. To illustrate further it will be found that the growth of the Sunday School has decreased religious teaching in the family, probably has lessened the study of the Bible, and led parents to feel less responsibility for the immediate religious training of their children. This state of affairs has modified the family function very materially. The same results will be found in other directions.

There are, of course, many incidental topics which are not properly activities of the family but are so important in relation to the family organization that it is undesirable to leave them out of consideration altogether. Among these are divorce in its economic aspects, the elements of law, including contracts, bills, notes, insurance, domestic relations, and elementary accountancy, etc., which every young woman ought to know something about. Then there are the activities which women engage in largely outside of family duties, such as charity organizations, etc. These deserve some consideration in this connection because every member of the family should be trained up to have some *avocation*.

I think the matters I have touched on are things that every woman who will have charge of a household should know, as distinct from the woman who takes up the subjects for the purpose of teaching them. It would be an excellent thing if some student of household science would take up this side of the work and evolve the course which I have briefly sketched into a fully developed course in administration of the family as distinct from household science in the commonly accepted sense.

RESPONSE BY FRANK A. FETTER.

Professor of Economics and Distribution, Cornell University.

To me is assigned the task of the critic. It is my duty to emphasize my disagreements with the plan that has been presented. I do not, however, find myself in a pugnacious mood; rather I feel a mingling of admiration and envy in seeing what Dean Kinley has accomplished

in developing this course. His work has been pioneering. It is hard to find the path in the wilderness, or to sail into unknown seas. This course has been charting new lands on our educational map, and has been marking the way that makes the journey easier for all who follow.

Even the general course in economics in our American universities is comparatively new. It is not long since economic instruction in our colleges consisted of one term of recitations in an English text-book given by the gray-haired president, a retired theologian. Now the course, guided by specialists, widens, and every year sees some new subject added to the curriculum in response to a demand called out by our new social needs.

An ideal course in household economics is not to be had by taking a little of this and a little of that from other economic subjects. The course just outlined has perhaps something of this character of an educational croquette, nevertheless it is a very wholesome and nutritious dish. I once gave a similar pioneer course in agricultural economics. My equipment for the work was meagre, consisting mainly of lying in a hammock while on a vacation visiting country relatives. Today the course in the same institution is given by a man who was raised on a farm, and who, added to practical experience, has a good general and special agricultural education. Today he is giving a course in agricultural economics that makes me proud that I was his predecessor.

An analogous training must the person have who is to develop the work in the economics of the household. A woman who knows household problems and has done household work, who will take all that economics and sociology can give and pass it through the medium of her life's experience will develop a course that will make any economist proud that he was her predecessor.

The course outlined contains elements usually classed as sociology, as well as parts classed as economics. Possibly at the meeting tomorrow evening the sociologists will claim many of these subjects as their own. Especially do the sociologists claim the subject of the family. It seems clear that the study of household economics must begin with the study of the family, however greatly city growth has weakened that basic social institution. A teacher in a high school in New York City lately assured me that the family was an institution that no longer existed in American cities, and therefore, thinks this teacher, pedagogy ought not to assume a knowledge of

family life in deciding the methods of instruction. It is a serious fact if an intelligent person can even question whether the family has become anywhere in America an out-lived institution. At least it forces us to consider whether the influences which have been weakening and limiting the family life are normal, or are temporary and unhealthy influences. Is this an evolution toward better conditions or is it evidence of social disintegration?

The same problem is presented by the Sunday School and the Church, and we hear even ministers now asking whether (or at least how far) these institutions have lost their usefulness through changing social conditions. Whenever the causes which have given rise to institutions are weakened, those who have them in charge redouble their appeal to our sense of duty. But such appeals can only delay, not prevent, the inevitable, for social institutions cannot survive indefinitely upon a reputation acquired under circumstances different from those which now exist.

But in regard to the destruction of the family in the cities, I feel that it is largely not in accord with the true processes of evolution. I feel that it is largely due to artificial and abnormal causes. The overgrowth of great cities is itself due in large part to unnatural and illegal railroad discrimination, to unwise social legislation, and to false standards of public opinion. It is bad political economy, this crowding of vast numbers of people into great cities to earn their daily bread under physical conditions where good housing, good sanitation, healthy recreation, and a sound family life are impossible.

We must continue to look upon the family as normal, desirable, and an indispensable unit of society. As a source and center of practical training in the social affections, it is without a substitute; but we need to recognize the great change that has come over the city family as a center of economic production. Our instruction in household economics must presuppose this normal family training in the child's experience; it must assume that our education is preparing boys and girls for a later normal family life as men and women.

The lack of home training that makes for efficiency shows itself, however, in a large number of boys and girls as they come to college, and it creates the greatest difficulties in college teaching. In the private preparatory schools the pupils too often are coached and coddled and do nothing without guidance. In their homes they are shielded by the affection and ambition of their parents and are obliged to

do nothing for themselves and nothing for others except to study lessons in books. The fact that opportunity for an education in doing things remains even in the city homes is often quite overlooked. A childhood spent without practical training and personal responsibility must produce young manhood and young womanhood without initiative or true power of independent thought.

It is especially significant for the teaching of household economics that our girls, more often than our boys, suffer from lack of practical training. The fault lies with us, the misguided parents. We feel that girls especially ought to be shielded from all responsibility and from the performance of those duties in the home which would be worth much more in their development than years of bookish studies. We university teachers are strongly tempted to adapt our teaching to this passive quality of mind. But we can not shift our responsibility, and our teaching of any of the social subjects, including household economics, to be vital must include observation, investigation and practical training, along with precept and principles. Thus we may break this vicious circle, this endless chain of youth, untrained in the arts of the home, becoming untrained parents of another generation of untrained youth. A part of our task is to arrive at sounder notions of the kind of family life than is possible and desirable in our new social conditions. That, rather than the chemistry of foods or the cost of gingham, is the main task of household economics.

Training of this kind to reach the masses must begin at least as early as the high school. I have long been interested in working out a plan which should take such high school subjects as geography, civics, American history, etc., as a foundation and should add the study of family conditions and of the industries of the neighborhood. There would seem to be a need of a text-book along these lines, but even our ordinary text-books may serve well if in the hands of an extraordinary teacher. For example, the questions of demand and supply, of utility, and of economic consumption as ordinarily treated are little more than dry terminology. These subjects to be helpful in household ceonomics must be discussed in terms of enjoyment and experience which the boys and girls have had. The traditional treatment of the theory of rent, as found in the ordinary books to which Dean Kinley has referred, is based upon the agricultural conditions in England 100 years ago, whereas the only renting of which most city dwellers know is that of tenements, apartments, stores, etc.

The problems of labor and of management, of wages and of profits, can be illustrated as well by domestic as by factory conditions. Trusts and monopolies, the money question, banking, all have a bearing upon the income of the family, and the welfare of the home. The effects of the tariff and of changing and of discriminating railroad rates are felt, especially, in the home. All these subjects lend themselves to a treatment from the point of view of the household, and in turn the home experience furnishes numberless illustrations of the broader economic principles.

City government and a growing portion of state and national government is but household economics writ large. When boys and girls are taught better to master the problems of economy in the home, they will be prepared better to understand the problems of economy in the state and in the nation. If this is so, the institution of the family, instead of becoming of less and less importance, will grow more and more important as the nursery of citizens and as a training place for the civic virtues. There is therefore need for the worker in household economics to see her problem in its larger relations, to understand the home in the light of general economic principles; but there is likewise need that general economic study should utilize more fully the experience in the family life and in the home economy.

SOME FEATURES OF NUTRITION DURING GROWTH.[1]

DR. LAFAYETTE B. MENDEL.

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The art of feeding during infancy and childhood has been practiced so many generations with obvious success that a physiologist may well hesitate to venture in any new direction in this domain. Notwithstanding this, the most superficial student of dietary habits must perceive that the science of nutrition has meanwhile advanced with great strides. In speaking of the changing attitude towards science, a recent writer has remarked:

> It is not merely that every day some obvious assumption is compelled to give way before some critical finding of science; but that every day we greet these, our own conquests, with incredulity. True, in regions to which we are entire strangers—that is, in regions where there are no first impressions to be corrected—we turn a gracious face upon the critical findings of science—hail them afar with even premature credulity; but not so in the places where we take our walks and transact our daily affairs. Toward radium and the X-ray, it is true, we are all smiles. They are new and astonishing, but not impertinent. They do not contradict us. When, however, we are told that the earth on which our feet are flatly planted is not flat; that the sun which we see daily traversing the sky does not traverse the sky; that the colors which we behold plastered all over the objective world are not in the objective world at all; that laziness (at least among the poor whites of the South), which so often gets on our nerves and gives us an excuse for abusing somebody, is not a mere human contrariety—then it is that our patience oozes out; and then it is that the following series of manifestations occurs: Ridicule; then wrath; then persecution; then sullen reticence; then a listless acquiescence in the inevitable; then the sprightly declaration that "we always knew it anyhow;" finally, a redoubled confidence that we can never be fooled again.[2]

Our knowledge of nutritional processes has at length become emancipated from the bonds of empiricism and custom, and has grown with

[1] A talk at the Conference on Homes, in connection with the Child Welfare Exhibit, New York City, January 18, 1911.

[2] H. W. Fisher: Making Life Worth While, p. 4.

the search for the why and wherefore of the practices in feeding. Dietary habits no longer rule with the authority of inherited prejudices; and the spirit of inquiry, which is dominating almost every field of human thought and endeavor, is beginning to make its influence felt in connection with the food problems of man. To those who welcome this new era, it is encouraging to note the readiness with which the ideas of to-day find acceptance. A spirit of open-mindedness has been cultivated. From an attitude of stubborn indifference to the new, our peoples are swinging to the other extreme of an over-readiness to accept the latest suggestion of the hour without criticism and to adopt it with a kind of blind faith which leads to faddishness.

The period through which we are passing is perhaps not characterized more by the additions to our store of facts than by the newer methods of approaching the questions which beset us. Some of you who are older will recall your first lesson in geography in which the introductory didactic assurance was given that the earth is "round like a ball,"—or perhaps an apple, to make the comparison more vivid. How strong was our faith in those days! Few indeed could justify the first lesson in terms of their own experience. To-day all this has changed; and the study of method in teaching has assumed an importance second only to the subject itself.

In the study of nutrition, too, the physiologist is prepared to admit the wisdom and efficiency of many—possibly most—of our dietetic customs; not, however, until he has sought to justify them on the basis of sound scientific reasoning. If we begin our dinner with soup or a relish as our forefathers did, the physiological justification for the practice is now forthcoming. The virtues of the extract of meat may remain, even though they are clothed in a new significance and no longer expressed in terms of concentrated nutriment.

If one is justified in adding a word to-day to the many which have been written on the subject of nutrition in early life, it is because emphasis has more properly been laid of late upon two important features. One of these is that the needs of the *growing* organism are distinctly different from those of the full grown adult for whom maintenance is the factor of primary import. The other feature is the introduction of the experimental method in which observation and trial in the laboratory and clininc give the true criterion for the validity of our dietetic theories. The earlier attempts to improve the artificial nutrition of infants by adapting cow's milk in quantitative imitation

of human milk failed to fulfill all that was expected of them because they were based upon analogy rather than scientific investigation.

What, then, are the nutritive peculiarities which distinguish the period of growth? The supply of energy in the form of food must be bountifully measured to cover the needs of the growing parts as well as the ordinary physiological functions. New cells and tissues are to be added; and for these, food material is necessary as well as for the routine activities. I fancy that this extra need of energy in the form of building materials for the growing body is quite adequately appreciated; one aspect of it has not yet received the attention which it deserves. It is not a matter of indifference to the growing child whether this energy for growth is furnished in one form or another. The adult can burn any fuel—protein, fat, or carbohydrate—to keep his machinery in action. But every gram of new bone calls for salts of calcium; every ounce of new blood means the addition of iron to the body's equipment; every new cell demands a contribution of specific chemical constituents. It is the problem of nutrition during growth to provide each one of these individual components in whatever form it is needed and in so far as it cannot be synthesized within the body's own laboratories.

Precisely here it is that too often artificial—and at times even natural—nutrition fails. The consequences of some of these deficiencies, as exemplified in rickets and anaemia, are well known. Many of them are far more subtle and equally far reaching. The inorganic salts or so-called mineral nutrients, too often entirely overlooked in any consideration of the dietary, not only supply essential constructive material for the cells, but they are indispensable for a normal functioning of the nervous and muscular system.

It may be worth while to devote a few words to the newer knowledge which investigation in this field has contributed. Body weight declines from the moment that the inorganic salts are excluded from the food intake, even though the other nutrients are supplied in abundance The water-balance of the body—the elimination or retention of water—is notably influenced by specific elements (ions); and individual ions such as sodium and calcium may be antagonistic to each other in such effects. So little as one gram (15 grains) of common salt fed to a sick infant may induce rise of temperature. Salts of potassium tend to raise and salts of calcium to depress temperature in infants (L. F. Meyer). Pulse and temperature can readily be affected

in infants by variations in the salt intake, so that the expression "salt-fever" has become current in clinical practice. The activity of the army of scavengers known as leucocytes is directly influenced by the salt intake. One can easily picture to himself a train of dire consequences following upon the omission or deficiency of a single element like calcium from the dietary. Some of the commonest foods of early life, such as wheat bread, meat and potatoes, are deficient in this very element. Enough has been said to indicate that so-called "calorie" feeding has manifest limitations which fortunately are less conspicuous in the period where milk, a food almost ideal in composition, forms the chief article of diet.

A well known German paediatrist, speaking of the difficulties of infant feeding, lately remarked: "Nutrition is beset with dangers from two sides: Overnutrition is its Scylla, and undernutrition its Charybdis." Those who appreciate how much has been done in recent years, especially in the United States, to determine the actual food requirements of adult man, will be gratified to learn that progress along similar lines has now been instituted in the study of infants in Germany. The respiration calorimeter—almost a household word to-day—has been admirably adapted to the investigation of infants and the researches have indicated the energy requirement to be high in proportion to body weight in comparison with the adult, but uniform in relation to the surface area of the individual. The crucial point is illustrated by the following data:[1]

AGE OF CHILD.	WEIGHT.	SURFACE.	CO_2 EXCRETION.	
			Per kilo and hour.	Per sq. m. and hour.
Days.	*Grams.*	*Sq. Meters.*	*Grams.*	*Grams.*
144	5790	0.3840	0.913	13.78
284	8450	0.4963	0.831	13.99
380	8930	0.5150	0.785	13 49

It may not be amiss to point out another lesson from the proportionality of metabolism to the extent of body surface. The hidden truth here of course lies in the fact that heat losses and temperature regulation are determined by the extent of body surface rather than by volumes or weights of tissue. The undue exposure of children in

[1]Schlossmann: *Arch. Kinderheilk.*, vol. 53.

parts ordinarily protected with clothing must operate to a certain extent to increase the metabolism of the individual when the external temperature is not exceptionally high. The bared legs of children offer an area of cooling equivalent to no insignificant part of the entire trunk. Viewed in this light the practice of wearing short socks ought to be adopted only with a considerable conservatism and good judgment, particularly in the case of delicate individuals.

In reviewing the methods of infant feeding which have been current during the past decade or two it is interesting to note the "changes in fashion," if the successive favorite practices may so be designated. Percentage feeding, so long conspicuous as a distinctive American contribution to food fashions, is giving way to the essentially German routine in which the specific character of the individual nutrients offered is of far greater moment than the relative proportion in which they are fed. Casein, which was once charged with many of the ills to which the infant digestive tract is subject, has lost its terrors. To-day the fats, to-morrow the sugar of milk may become the offending member of the diet.

The gratifying feature of this confusing alternation of difficulties is the fact that the dietitian is learning to distinguish more accurately between the various symptoms of indigestion and malnutrition. The curdy flocks in the stools of the sick infant are not necessarily undigested curds; they may be soaps of lime or flocks of mucus. Fermentative conditions in the alimentary tracts are no longer charged to the bacterial decomposition of proteins alone; the carbohydrates of the diet may be equally well at fault. This discriminating intelligence, based on careful observation and a more thorough knowledge of the role of digestion in nutrition, has greatly extended the possibilities of the rational feeding of the young. Malt soup and carrot soup, buttermilk and vegetable oils, barley and bean meals are illustrations of novelties which have been introduced in this way. The dietaries have been widened and the food of the day adapted to the indications of the hour. The time has arrived when the physician no longer hesitates to eliminate all food for a time in conditions of collapse due to defective alimentation—to food intoxication, as it has been called. The offended stomach and intestine and other nutritive organs are now-a-days permitted to recover from the prolonged insults of undigested food in the restful quiet of temporary starvation. Individuality in dietetic treatment has become the password to success.

In addition to the growth requirements a further peculiarity of the young lies in the possibility of an incomplete equipment of those agencies which contribute to perfect nutrition in the fullgrown. For example, the folly of offering starch to an individual whose secretions may not yet be developed to digest it, is obvious. Less appreciated is the objectionable oversupply of water to young infants in particular. Large volumes of dilute nutriment are habitually administered without the slightest consideration of the physiological work which this entails. The circulatory organs and kidneys are continually taxed to transport water and eliminate an exceedingly dilute urine. Heat is necessary to dissipate part of the water in the form of vapor from the lungs. An unnecessary loss of essential inorganic salts through the prolonged water diuresis is not beyond the bounds of probability. One of our foremost paediatrists has not hesitated to emphasize these facts.

"Even human milk," he says, "is rich enough in water to produce an exceedingly dilute urine. There is certainly no lack of water in the milk; yet quantities of water, far exceeding those in breast feeding, are often administered in the guise of artificial food. There is no reason for attributing anything either necessary or helpful to this surfeit of water. To-day we know what the water-needs of the infant are; and the question of the concentration of its food will require more consideration in the dietetics of the future."

There comes a period early in the life of every child when an extension in the range of the dietary becomes imperative. The paucity of food-ideas in the case of some parents is almost painful. Every prejudice, be it inherited or recently acquired, is brought into play to diminish the possibilities of liberal variety and wholesome choice. I know that some of my views in this connection will be charged with the flavor of faddishness. It matters not, so long as they encourage a few new experiments and dispel the fear of all that is unorthodox in feeding traditions. The mention of the banana as a food for young children still strikes terror into the heart of many parents. "What!" they say, "do you expect me to feed to this little child an indigestible bit of fruit which even I can barely tolerate?" I have often wondered at this widespread misapprehension. The ripe banana is as nearly free from bacteria beneath the skin layer as any fruit or vegetable which is available. In the process of ripening, its 20 per cent content of starch is rapidly and almost completely converted into soluble

carbohydrates, mostly sugars. The content of protein and fat is insignificant; while the cellulose is present in the form of loose shreds, which readily pass through the alimentary canal without causing irritation and which may even contribute a desirable volume and consistency to the contents. The shreds adhering to the inner peel should always be removed. The banana is cheap, everywhere available at most seasons of the year, and can be prepared in a variety of palatable ways for consumption. Perhaps the fear of the banana is in good part attributable to the irrational way in which many grown-ups eat this fruit. They decline to eat this fruit unless it is unripe and still green, often in the delusive belief that the characteristic blackening of the ripe fruit is a sign of actual decay. Yet who would eat green apples and expect immunity? Or again the adult delivers the entire banana to his innocent stomach in two or three bolted chunks, oblivious of the simplest requirements of mastication which the smallest child does not neglect. The story of the banana might be repeated in a statement of the prejudice against prunes and other fruits, against carrots and spinach and a host of foods which lend effective variety to the dietary, provided that they are furnished in suitable form. How welcome must such diversity be to a child such as I lately saw fed upon crackers, custard, and cocoa, by a "dietetically helpless" mother.

The rapid growth in popular knowledge of common foods will soon modify all this. Conferences like the present one can help to hasten the progress. In our enthusiasm for greater possibilities in the uses of foods we must not overlook or minimize the idiosyncracy which an occasional individual may exhibit towards some widely used article of diet. Milk, eggs, fish, berries—even cereals may be included in the list. The skin rashes with which children respond to certain of these products are familiar. With others distinct alimentary symptoms may supervene. This hypersusceptibility is already forming the subject of serious study. Its occurrence is unquestionable and must be reckoned with.

If I have dwelt in a rather cursory way upon some unrelated features of nutrition in growth it has been with the hope, above all, of diverting your view-point from the requirements of the adult to those which are peculiar to the developing child. The privileges of investigation carry with them an obligation to make its contributions a part of the general store of knowledge and to apply them in useful practices.

INSTITUTIONS IN THE UNITED STATES GIVING INSTRUCTION IN HOME ECONOMICS.

MARIE T. SPETHMANN.

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There are in the United States over one hundred colleges and universities or other institutions of collegiate grade which give courses in Home Economics. Of this number the colleges of agriculture and mechanic arts, or so-called land-grant colleges, established by act of Congress in each of the States, constitute the largest group offering four-year courses leading to the usual academic degrees. The courses vary considerably in their character and extent but in the main represent a reasonably high standard.

Such work under a variety of names is also included in the curricula of a great number of normal schools and high schools.

The information included in the summary here presented has been compiled from a card index of institutions, including normal schools and high schools as well as institutions of collegiate grade, giving instruction in Home Economics which is maintained in the Agricultural Education Service of the Office of Experiment Stations as a part of its regular work. Generally speaking, it includes only those institutions which have furnished definite information regarding their courses as a result of correspondence with them. In a few cases the data desired have been obtained in some other way.

As regards colleges and other institutions this compilation comprises 32 land-grant institutions, 102 collegiate institutions not receiving Federal aid, 102 normal schools, 64 secondary schools receiving state aid for instruction in agriculture and Home Economics, besides 634 other high schools, 12 special domestic science schools, 24 industrial schools, 26 institutions for defectives and dependents, and 26 part-time schools, all for white students.

Four-year courses leading to degrees are offered by 27 of the 32 land-grant institutions. Instruction in Home Economics for teachers is offered by 22 of the 32 land-grant institutions, by 23 of the other collegiate institutions, and by 3 of the special domestic science schools.

Twelve of the land-grant institutions also give instruction in this subject to teachers in their summer sessions. The agricultural colleges in Michigan and New York offer home reading courses in Home Economics, and the Pennsylvania, Wisconsin and Wyoming agricultural colleges and the School of Education of the University of Chicago offer correspondence courses. There are also two special Household Economics correspondence schools in Illinois.

There are also 16 land-grant institutions (of secondary grade) and 69 secondary and elementary institutions not receiving Federal aid for negroes, and 137 secondary and elementary schools for Indians. Of the 16 land-grant institutions for negroes, 9 offer some training for teachers in Home Economics, and of about 20 negro collegiate institutions listed, 6 give such training.

The grand total of institutions known to be giving instruction in Home Economics in the United States is, therefore, over 1200, and there are undoubtedly many others doing similar work.

The writer will be glad to receive corrections and additions to the following list:

I. INSTITUTIONS FOR WHITE STUDENTS.

1. Collegiate Institutions.

A. Collegiate Institutions Receiving Aid from the Federal Government.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION	PRESIDENT
Colorado.....	State Agr. College	Fort Collins	C. A. Lory
Connecticut.....	Conn. Agr. College	Storrs	C. L. Beach
Idaho	University of Idaho	Moscow	J. A. MacLean
Illinois.....	University of Illinois	Urbana	E. E. James
Indiana	Purdue University	Lafayette	W. E. Stone
Iowa.....	Iowa State College	Ames	E. W. Stanton
Kansas.....	Kansas State Agr. College	Manhattan	H. J. Waters
Kentucky.....	State University	Lexington	J. G. White
Maine.....	University of Maine	Orono	R. J. Aley
Massachusetts ..	Mass. Agr. College	Amherst	K. L. Butterfield
Michigan.....	Mich. State Agr. College	Agr. College	J. L. Snyder
Minnesota.....	University of Minnesota	St. Paul	G. E. Vincent
Missouri.....	University of Missouri	Columbia	A. R. Hill
Montana.....	Montana Agr. College	Bozeman	J. M. Hamilton
Nebraska	University of Nebraska	Lincoln	Samuel Avery
Nevada..... ..	University of Nevada	Reno	J. E. Stubbs
Mew Mexico ..	N. M. College of Agr. and Mech. Arts	Agricultural College	W. E. Garrison

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION	PRESIDENT
New York	Cornell University	Ithaca	J. G. Schurman
North Dakota ..	N. D. Agr. College	Agr. College	J. H. Worst
Ohio.....	Ohio State University	Columbus	J. O. Thompson
Oklahoma.....	Okla. A. and M. College	Stillwater	J. H .Connell
Oregon	Oregon State Agr. College	Corvallis	W. J. Kerr
Pennsylvania ..	Penn. State College	State College	E. E. Sparks
Rhode Island...	R. I. State College	Kingston	Howard Edwards
South Dakota ..	S. D. State College	Brookings	R. L. Slagle
Tennessee	University of Tennessee	Knoxville	Brown Ayres
Utah.....	Agr. College of Utah	Logan	J. A. Widtsoe
Vermont.....	University of Vermont	Burlington	M. H. Buckham
Washington	State College of Wash.	Pullman	E. A. Bryan
West Virginia...	West Virginia University	Morgantown	D. B. Purinton
Wisconsin.....	University of Wisconsin	Madison	C. R. Van Hise
Wyoming.....	University of Wyoming	Laramie	C. O. Merica

B. Collegiate Institutions not Receiving Aid from the Federal Government.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Alabama.....	Athens College (for women)	Athens
	Florence University for Women	Florence
Arkansas.....	Henderson College	Arkadelphia
California	Cogswell Polytechnical College	San Francisco
	Dominican College	San Rafael
	Mills College	Mills College
	Leland Stanford Junior University	Stanford University
Colorado.....	Woman's College	Denver
	Colorado Woman's College	Montclair
Connecticut	The Hartford School of Religious Pedagogy	Hartford
Florida.....	John B. Stetson University	DeLand
	Southern College	Sutherland
	State College for Women	Tallahassee
	School of D. and I. Arts of Rollins College	Winter Park
Georgia.....	Atlanta University	Atlanta
	Bessie Tift College	Forsyth
	Brenau College	Gainesville
Idaho.....	College of Idaho	Caldwell
Illinois.....	Illinois Wesleyan University	Bloomington
	Lewis Institute	Chicago
	University of Chicago	Chicago
	James Millikin University	Decatur
	Northwestern University	Evanston
	Ewing College	Ewing

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Illinois	Illinois Woman's College	Jacksonville
	St. Mary's School	Knoxville
	Ferry Hall	Lake Forest
	Lincoln College of James Millikin Univ.	Lincoln
	McKendree College	Lebanon
	Bradley Polytechnic Institute	Peoria
	Rockford College	Rockford
	Bettie Stuart Institute	Springfield
	Wheaton College	Wheaton
Indiana	Earlham College	Earlham
	St. Mary's College and Academy	Notre Dame
	Winona College of Agriculture	Winona Lake
Iowa	Drake University	Des Moines
	Humboldt College	Humboldt
	Lenox College	Hopkinton
Kansas	Midland College	Atchison
	Highland University	Highland
	University of Kansas	Lawrence
Kentucky	Berea College	Berea
	State University	Louisville
Louisiana	H. Sophie Newcomb Memorial College (girls' college of Tulane University)	New Orleans
Maryland	National Park Seminary	Forest Glen
	Woman's College	Frederick
Massachusetts	Lasell Seminary	Auburndale
	Simmons College	Boston
	Northfield Seminary	East Northfield
	Hill Institute	Florence
	Woodward Institute	Quincy
Michigan	Hillsdale College	Hillsdale
Minnesota	Albert Lea College for Women	Albert Lea
	North Star College	Warren
Mississippi	Miss. Industrial Institute and College	Columbus
	Meridian Woman's College	Meridian
	Port Gibson Female College	Port Gibson
Missouri	Stephens College	Columbia
	Cottey College	Nevada
	Lindenwood College for Women	St. Charles
Nebraska	University of Omaha	Omaha
New Jersey	College of St. Elizabeth	Convent Station
New Mexico	University of New Mexico	Albuquerque
New York	Lady Jane Grey School	Binghampton
	Pratt Institute	Brooklyn
	Fort Edward Collegiate Institute (for girls)	Fort Edward
	Bennett School for Girls	Millbrook

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
New York	College of St. Angela	New Rochelle
	Teachers' College of Columbia University	New York
	Vassar College	Poughkeepsie
	Woman's Institute	Yonkers
North Carolina	Salem Academy and College	Winston-Salem
North Dakota	University of North Dakota	University P. O.
Ohio	Oxford College for Women	Oxford
	Western College for Women	Oxford
	Lake Erie College	Painesville
Oklahoma	Okla. Ind. Inst. and College for Girls	Chickasha
	State University	Norman
Pennsylvania	Blairsville College (Woman's College)	Blairsville
	Elizabethtown College	Elizabethtown
	Temple University	Philadelphia
	Drexel Institute	Philadelphia
Porto Rico	University of Porto Rico	Rio Piedras
Rhode Island	Brown University, Woman's College	Providence
South Carolina	Benedict College	Columbia
Tennessee	Washington and Tusculum College	Greensville
	Carson and Newman College	Jefferson City
	Nashville Agricultural and Normal Institute	Madison
	Belmont College	Nashville
	Burritt College	Spencer
Texas	College of Industrial Arts	Denton
Utah	Brigham Young College	Logan
	Brigham Young University	Provo
	University of Utah	Salt Lake City
	L. D. S. University	Salt Lake City
Vermont	Middlebury College	Middlebury
Virginia	Eastern College	Manassas
	Sweet Briar College	Sweet Briar
Washington	University of Washington	Seattle
Wisconsin	Milton College	Milton
	Milwaukee-Downer College	Milwaukee

2. SECONDARY INSTITUTIONS.

A. Normal Schools.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Alabama	Normal Department, Polytechnic College and Ladies' Institute	Cullman
	State Normal College	Florence
	State Normal School	Jacksonville
	Lincoln Normal School	Marion
Arizona	Temple Normal School	Tempe
California	State Normal School	Los Angeles
	State Normal School	San Diego
	State Normal School of Manual Arts and Home Economics	Santa Barbara
Colorado	State Normal School	Greeley
Georgia	State Normal School	Athens
	Georgia Normal and Industrial College	Milledgeville
	Allen Normal and Industrial School	Thomasville
Idaho	State Normal School	Albion
	State Normal School	Lewiston
Illinois	Southern Illinois State Normal University	Carbondale
	Chicago Normal School	Chicago
	Technical Normal School	Chicago
	Northern Illinois State Normal School	De Kalb
	Western Illinois State Normal School	Macomb
	State Normal University	Normal
Indiana	Indianapolis Normal School	Indianapolis
Iowa	State Teachers' College	Cedar Falls
Kansas	State Normal School	Emporia
	State Normal School	Hays
	Kansas State M. T. Normal School	Pittsburg
Kentucky	Western Kentucky State Normal School	Bowling Green
Louisiana	State Normal School	Natchitoches
Maryland	Baltimore Teachers Training School	Baltimore
Massachusetts	Boston Normal School	Boston
	State Normal School	Fitchburg
	State Normal School	Framingham
	State Normal School	Hyannis
	State Normal School	North Adams
	State Normal School	Worcester
Michigan	Thomas Normal Training School	Detroit
	Western State Normal School	Kalamazoo
	Northern State Normal School	Marquette
	Central State Normal School	Mount Pleasant
	State Normal College	Ypsilanti

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Minnesota	State Normal School	Duluth
	State Normal School	Mankato
	State Normal School	Moorhead
	State Normal School	St. Cloud
	State Normal School	Winona
Missouri	Cape Girardeau Normal School	Cape Girardeau
	Missouri State Normal School	Warrensburg
Nebraska	State Normal School	Kearney
	Nebraska State Normal School	Peru
	Wayne Normal College	Wayne
New Mexico	New Mexico Normal University	Las Vegas
	Normal School	Silver City
New York	Teachers' Training School	Auburn
	State Normal School	Brockport
	State Normal and Training School	Cortland
	State Normal School	New Paltz
	New York Training School for Teachers	New York City
	State Normal School	Oneonta
	N. Y. State Normal and Training School	Oswego
	Rochester Training School	Rochester
North Carolina	Normal and Collegiate Institute	Asheville
	State Normal and Industrial College	Greensboro
	East Carolina Teachers' Training School	Greenville
North Dakota	N. D. State Normal Industrial School	Ellendale
	State Normal School	Mayville
	State Normal School	Valley City
	North Dakota School of Science	Wahpeton
Ohio	Oberlin Summer School of Methods	Oberlin
	State Normal College of Miami Univ.	Oxford
Oklahoma	East-Central State Normal School	Ada
	Northwestern State Normal School	Alva
	Southeastern State Normal School	Durant
	Central State Normal School	Edmond
	Northeastern State Normal School	Tahlequah
	Southwestern State Normal School	Weatherford
Philippines	Philippine Normal School	Manila
Rhode Island	Rhode Island Normal School	Providence
South Carolina	Memminger Normal School	Charleston
	Winthrop Normal and Industrial College	Rock Hill
South Dakota	Northern Normal and Industrial School	Aberdeen
	State Normal School	Madison
Tennessee	Morristown Normal and Industrial College	Morristown
Texas	West Texas State Normal School	Canyon
	North Texas State Normal College	Denton
	Sam Houston Normal Institute	Huntsville

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Utah	Southern Branch of the State Normal School of the University of Utah	Cedar City
	State Normal School	Salt Lake City
Vermont	State Normal School	Castleton
	State Normal School	Johnson
	State Normal School	Randolph Center
Virginia	McKinley Normal and Ind. School	Alexandria
Virginia	State Female Normal School	Farmville
	StateNormal and Ind. School for Women	Fredericksburg
Washington	State Normal and Industrial School	Harrisonburg
	State Normal School	Bellingham
	State Normal School	Cheney
	State Normal School	Ellensburg
Wisconsin	Stout Institute	Menomonie
	La Crosse County Normal School	Onalaska
	State Normal School	Oshkosh
	Sauk County Normal School	Reedsburg
	Normal School	Stevens Point
	State Normal School	Superior

B. Secondary Schools Receiving State Aid for Agriculture and Domestic Science.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Alabama	Marengo County High School	Thomaston
	Fifth District Agricultural School	Wetumpka
Arkansas	Third District Agricultural School	Magnolia
	Fourth District Agricultural School	Monticello
	Second District Agricultural School	Russellville
California	California Polytechnic School	San Luis Obispo
Georgia	Third District Industrial and Agr. School	Americus
	Sixth District Industrial and Agr. School	Barnesville
	Fourth District Industrial and Agr. School	Carrollton
	Ninth District Industrial and Agr. School	Clarkesville
	Eleventh District Ind. and Agr. School	Douglas
	Tenth District Industrial and Agr. School	Granite Hill
	Fifth District Industrial and Agr. School	Monroe
	Seventh District Ind. and Agr. School	Powder Springs
	First District Industrial and Agr. School	Statesboro
	Second District Industrial and Agr. School	Tifton
Louisiana	Arcadia High School	Arcadia
	Bunkie Agricultural High School	Bunkie

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Louisiana	Dodson Agricultural High School	Dodson
	Oak Grove Agricultural High School	Hope Villa
	First Ward Consolidated School	Jacoby
	Bellevue Agricultural High School	Leesville
	Merryville Agricultural High School	Merryville
	Stonewall Agricultural High School	Stonewall
Maryland	Agricultural High School	Philopolis
Massachusetts	Montague Agricultural School	Montague
	Smith's Agricultural School and Northampton School of Industries	Northampton
	Petersham Agricultural High School	Petersham
Michigan	Menominee County School of Agriculture and Domestic Economy	Menominee
Minnesota	High School	Albert Lea
	High School	Alexandria
	Canby High School	Canby
	High School	Cokato
	High School	Crookston
	Crookston School of Agriculture	Crookston
	Glencoe High School	Glencoe
	High School	Hinckley
	High School	McIntosh
	School of Agriculture of Minnesota Univ.	Morris
	High School	Wells
Mississippi	Bay Springs Agricultural School	Bay Springs
New York	N. Y. School of Agriculture at Alfred Univ.	Alfred
	N. Y. State School of Agr., St. Lawrence University	Canton
Oklahoma	Haskell State School of Agriculture	Broken Arrow
	Panhandle Agricultural Institute	Goodwell
	Connell State School of Agriculture	Helena
	Cameron State School of Agriculture	Lawton
	Murray State School of Agriculture	Tishomingo
	Connors State School of Agriculture	Warner
Texas	Tuleta Agricultural High School	Tuleta
Virginia	Tenth District Agricultural High School	Appomattox
	Longyear High School	Burkeville
	Agricultural High School	Chester
	Agricultural High School	Driver
	Elk Creek Training School	Elk Creek
	Agricultural High School	Hampton
	Agricultural High School	Lebanon
	Agricultural High School	Manassas
	Agricultural High School	Middletown

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Wisconsin	Marinette County School of Agriculture and Domestic Economy	Marinette
	Dunn County School of Agriculture and Domestic Economy	Menomonie
	La Crosse County School of Agriculture and Domestic Economy	Onalaska
	Marathon County School of Agriculture and Domestic Economy	Wausau
	Winnebago County School of Agriculture and Domestic Economy	Winneconne

C. High Schools Giving Courses in Home Economics.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Alabama	High School	Almond
	High School	Birmingham
Arizona	High School	Bisbee
	High School	Morenci
	Union High School	Tempe
Arkansas	High School	Fort Smith
	High School	Little Rock
California	High School	Auburn
	Kern County High School	Bakersfield
	High School	Berkeley
	Snell Seminary	Berkeley
	Brawley Union High School	Brawley
	High School	Chino
	High School	Colton
	Compton Union High School	Compton
	Covina Union High School	Covina
	Eureka High School	Eureka
	High School	Fresno
	Fullerton Union High School	Fullerton
	Hollywood Union High School	Hollywood
	Imperial Valley Union School	Imperial
	Union High School No. 1	Livermore
	Longbeach City High School	Longbeach
	Westlake School for Girls	Los Angeles
	Polytechnic High School	Los Angeles
	Gardena High School	Los Angeles
	M. T. and Com. High School	Oakland
	High School	Ontario

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
California	Castilleja School	Palo Alto
	Throop Academy	Pasadena
	Pomona City High School	Pomona
	Shasta County High School	Redding
	High School	Redlands
	Richmond Union High School	Richmond
	San Bernardino High School	San Bernardino
	California School of Mechanical Arts	San Francisco
	Irving Institute	San Francisco
	Polytechnic High School	San Francisco
	Girls' High School	San Francisco
	San Jose High School	San Jose
	Ann S. C. Blake M. T. School	Santa Barbara
	Santa Monica City High School	Santa Monica
	South Pasadena City High School	South Pasadena
	Ventura High School	Ventura
	High School	Watsonville
	Whittier Union High School	Whittier
	Siskiyou County High School	Yreka
Colorado	High School	Alamosa
	High School	Arvada
	High School	Aspen
	High School	Black Hawk
	High School	Blanca
	High School	Boulder
	State Preparatory School	Boulder
	High School	Breckenridge
	High School	Brush
	High School	Canon City
	High School	Central City
	High School	Colorado City
	High School	Colorado Springs
	High School	Cripple Creek
	High School	Delta
	East Side High School	Denver
	Manual Training School, High	Denver
	High School	Durango
	High School	Eaton
	High School	Edgewater
	High School	Florence
	High School	Fort Collins
	High School	Fort Morgan
	High School	Fruita
	High School	Georgetown
	High School	Glenwood Springs

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Colorado	High School	Golden
	High School	Grand Junction
	High School	Greeley
	High School	Hotchkiss
	High School	Idaho Springs
	High School	La Junta
	High School	Lamar
	High School	Las Animas
	High School	Leadville
	High School	Littleton
	High School	Longmont
	High School	Louisville
	High School	Loveland
	High School	Manitou
	High School	Montrose
	High School	Monte Vista
	High School	New Windsor
	High School	Paonia
	High School	Palisade
	Centennial High School	Pueblo
	East Side High School	Pueblo
	West Side High School	Pueblo
	Pueblo High School	Pueblo
	High School	Rocky Ford
	High School	Salida
	High School	South Canon
	High School	Sterling
	High School	Telluride
	High School	Trinidad
Connecticut	Ely School for Girls	Greenwich
	High School	Hartford
	High School	Naugatuck
	High School	New Britain
	New Haven High School	New Haven
	High School	So. Manchester
	Staples High School	Westport
Dis. of Col.	Technical High School	Washington
Florida	Duvall High School	Jacksonville
	High School	St. Petersburg
Georgia	High School	Albany
	High School	Athens
	Tubman High School	Augusta
	Piedmont College	Demorest
	Wesley Chapel High School	Eatonton
	High School	Hephzibah

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Georgia	Gresham High School for Girls	Macon
	High School	Savannah
Hawaii	St. Andrews Priory	Honolulu
	Kamehameha Schools	Honolulu
Idaho	High School	Boise
	Idaho Falls High School	Idaho Falls
	High School	Lewiston
	High School	Moscow
	High School	Nampa
	Academy of Idaho	Pocatello
	Rural High School No. 1	Rigby
Illinois	Jennings Seminary	Aurora
	Austin High School	Austin Sta., Chicago
	Bridgeport Township High School	Bridgeport
	High School	Cairo
	High School	Carbondale
	Township High School	Centralia
	High School	Champaign
	High School	Charleston
	High School	Chicago
	Calumet High School	Chicago
	Curtis High School	Chicago
	Farragut High School	Chicago
	Lake High School	Chicago
	Marshall High School	Chicago
	Medill High School	Chicago
	Phillips High School	Chicago
	University High School	Chicago
	High School	Clinton
	J. Sterling Morton High School	Clyde
	Woodford County Consolidated School	Congerville
	High School	Danville
	High School	Decatur
	Township High School	DeKalb
	High School	East Aurora
	High School	East St. Louis
	Englewood High School	Englewood Sta., Chicago
	High School	Elgin
	High School	Fairbury
	High School	Freeport
	High School	Galena
	High School	Galesburg
	High School	Galva
	Geneseo Twp. High School	Geneseo

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Illinois	Township High School	Harrisburg
	Deerfield Township High School	Highland Park
	High School	Jacksonville
	Township High School	Kenilworth
	High School	Kewanee
	Lakeview High School	Lakeview Sta., Chicago
	LaSalle-Peru Twp. High School	LaSalle
	Township High School	Lexington
	Township High School	Lockport
	McKinley High School	McKinley Park Sta., Chicago
	John Swaney Consolidated School	McNabb
	High School	Moline
	Township High School	Murphysboro
	High School	Pekin
	High School	Peoria
	Manual Training High School	Peoria
	Township High School	Pontiac
	Township High School	Princeton
	High School	Quincy
	High School	Rockford
	High School	Rock Island
	Roseville Township High School	Roseville
	Township High School	Savanna
	South Chicago High School	South Chicago
	High School	Springfield
	Township High School	Stockland
	Township High School	Streator
	High School	Sycamore
	Township High School	Taylorville
	High School	Urbana
	High School	Watseka
	Township High School	Waukegan
	High School	West Aurora
Indiana	High School	Batesville
	High School	Evansville
	Fort Wayne High School	Fort Wayne
	High School	Greenfield
	High School	Hartford City
	High School	Huntington
	Manual Training High School	Indianapolis
	High School	Laporte
	High School	Marion
	High School	Mooresville

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Indiana	High School	Muncie
	High School	South Bend
	High School	Westfield
	High School	Whiting
Iowa	High School	Burlington
	High School	Cedar Rapids
	High School	Coin
	High School	Davenport
	High School	Denison
	East High School	Des Moines
	High School	Dubuque
	High School	Iowa City
	High School	Marshalltown
	High School	Mason City
	New Providence Academy	New Providence
	High School	Onawa
	High School	Oskaloosa
	High School	Rock Valley
	High School	Tipton
	High School	East Waterloo
	High School	What Cheer
Kansas	High School	Arkansas City
	High School	Atchison
	Dickinson County High School	Chapman
	Crawford County High School	Cherokee
	Cherokee County High School	Columbus
	Atchison County High School	Effingham
	High School	El Dorado
	High School	Emporia
	High School	Eureka
	High School	Fort Scott
	High School	Gas City
	High School	Hutchinson
	Sumner High School	Kansas City
	High School	Marion
	Reno County High School	Nickerson
	Decatur County High School	Oberlin
	High School	Ottawa
	Salina High School	Salina
	High School	Topeka
	Sumner County High School	Wellington
	High School	Wichita
	High School	Winfield
Kentucky	High School	Covington
	Henderson High School	Henderson
	Girls' High School	Louisville

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Louisiana	High School	Monroe
	Isadore Newman Manual Training School	New Orleans
	High School	Shreveport
Maine	Edward Little High School	Auburn
	East Maine Conference Seminary	Bucksport
	Jordan High School	Lewiston
	Parsonsfield Seminary	Parsonsfield
	High School	Sanford
Maryland	Surratsville High School	Clinton
	Washington High School	Princess Anne
	Wicomico High School	Salisbury
	High School	Sharptown
Massachusetts	Girls' High School of Practical Arts	Boston
	High School	Brockton
	High School	Brookline
	Trade School for Girls	Cambridge
	High School	Cambridge
	Sea Pines—A Home School for Girls	East Brewster
	Northfield Seminary	East Northfield
	High School	Fairhaven
	High School	Hadley
	High School	Holyoke
	High School	Lawrence
	High School	Lowell
	High School	Lynn
	High School	Malden
	High School	Manchester
	High School	Marlboro
	High School	Medford
	High School	Milton
	High School	Nantucket
	Mount Ida School	Newton
	High School	Newton
	Newton Technical High School	Newton
	High School	So. Framingham
	Technical High School	Springfield
	High School	Walpole
	High School	Waltham
	High School	Winchester
	High School	Worcester
Michigan	High School	Adrian
	High School	Battle Creek
	High School	Cadillac
	High School	Coldwater
	High School	Crystal Falls

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Michigan.....	Central High School	Detroit
	High School	Eaton Rapids
	High School	Escanaba
	High School	Grand Rapids
	High School	Hastings
	Hillsdale High School	Hillsdale
	High School	Iron Mountain
	High School	Ironwood
	High School	Ishpeming
	High School	Jackson
	High School	Kalamazoo
	High School	Lake Linden
	High School	Ludington
	High School	Manistee
	High School	Manistique
	High School	Marshall
	High School	Mount Pleasant
	High School	Muskegon
	Hackley Manual Training School	Muskegon
	High School	Negaunee
	High School	North Adams
	High School	Pa nesdale
	High School	Saginaw, East Side
	High School	Sault Ste. Marie
Minnesota....	High School	Ada
	High School	Akely
	High School	Anoka
	High School	Argyle
	High School	Austin
	High School	Bagley
	High School	Barnesville
	High School	Biwabik
	High School	Blooming Prairie
	High School	Blue Earth
	High School	Chisholm
	High School	Coleraine
	High School	Cottonwood
	Industrial High School	Duluth
	High School	East Grand Forks
	High School	Elk River
	High School	Ely
	High School	Eveleth
	High School	Fergus Falls
	High School	Grand Rapids
	High School	Hector

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
	High School	Hibbing
	High School	Howard Lake
	High School	Lake City
	High School	Le Sueur
	High School	Litchfield
	High School	Luverne
	High School	Mankato
	High School	New Richland
	High School	Ortonville
	High School	Owatonna
	High School	Pipestone
	High School	Red Wing
	High School	Redwood Falls
	High School	Renville
	High School	St. James
Minnesota....	Central High School	St. Paul
	Mechanic Arts High School	St. Paul
	Cleveland High School	St. Paul
	Humboldt High School	St. Paul.
	High School	Sauk Rapids
	High School	Sleepy Eye
	High School	Spring Valley
	High School	Stephen
	High School	Thief River Falls
	High School	Two Harbors
	High School	Virginia
	High School	Wabasha
	High School	Warren
	High School	Waseca
	High School	Wheaton
	Winona Seminary	Winona
	Winona High School	Winona
	High School	Bonne Terre
	High School	Cape Girardean
	High School	Chillicothe
	High School	Clayton
	High School	Flat River
	High School	Greenfield
Missouri.....	High School	Joplin
	Manual Training High School	Kansas City
	Westport High School	Kansas City
	High School	Kirkwood
	High School	Lamar
	High School	Maplewood
	High School	Maryville

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Missouri	High School	Mexico
	High School	Springfield
	Central High School	St. Joseph
	Benton High School	St. Joseph
	Bartlett High School	St. Joseph
	Central High School	St. Louis
	McKinley High School	St. Louis
	Yeatman High School	St. Louis
	Soldan High School	St. Louis
	Sumner High School	St. Louis
	High School	Webster Groves
Montana	Sweet Grass Co. High School	Big Timber
	High School	Billings
	High School	Butte
	High School	Dillon
	Flathead County High School	Kalispell
Nebraska	High School	Aurora
	High School	Beatrice
	High School	Beaver City
	High School	Central City
	High School	Chadron
	High School	Columbus
	Crete High School	Crete
	High School	Exeter
	High School	Fairfield
	High School	Geneva
	High School	Hastings
	High School	Hebron
	High School	Holdrege
	High School	Humboldt
	Kimball County High School	Kimball
	High School	Lexington
	High School	Lincoln
	High School	Nelson
	High School	Newman Grove
	Omaha High School	Omaha
	High School	South Omaha
	High School	St. Edward
	High School	Wayne
	High School	York
New Hampshire	High School	Berlin
	St. Mary's School	Concord
	Pinkerton Academy	Derry
	Robinson Seminary	Exeter
	Gilmanton Academy	Gilmanton
	High School	Walpole

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
New Jersey ..	High School	Montclair
	High School	Orange
	Pennington Seminary	Pennington
	High School	Perth Amboy
	High School	Plainfield
New Mexico ..	High School	Clayton
	High School	Deming
New York	Albany Vocational School	Albany
	High School	Batavia
	Barlow School of Industrial Arts	Binghampton
	High School	Brockport
	Manual Training High School	Brooklyn
	Brooklyn Institute of Arts and Sciences	Brooklyn
	Buffalo Seminary	Buffalo
	Drew Seminary for Young Women	Carmel
	High School	Dunkirk
	High School	Glens Falls
	High School	Hudson
	High School	Ithaca
	High School	New Paltz
	Hebrew Technical School	New York
	High School	Olean
	High School	Poughkeepsie
	Mechanics Institute	Rochester
	High School	Saratoga Springs
	Emma Willard School	Troy
North Carolina....	High School	Goldsboro
	High School	Greensboro
	High School	Holly Springs
	High School	Newbern
	High School	Raleigh
	High School	Washington
North Dakota	High School	Cando
	High School	Carrington
	High School	Cooperstown
	High School	Fargo
	High School	Grand Forks
	High School	Harvey
	High School	Kenmare
	High School	Larimore
	High School	Valley City
	High School	Williston
Ohio.....	High School	Akron
	Ohio Mechanics Institute	Cincinnati
	Walnut Hills High School	Cincinnati

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Ohio	Woodward High School	Cincinnati
	Hughes High School	Cincinnati
	Technical High School	Cleveland
	High School	Columbus
	Steele High School	Dayton
	Stivers Manual Training High School	Dayton
	High School	Fostoria
	High School	Hamilton
	High School	Lockland
	High School	Madisonville
	High School	Springfield
	Central High School	Toledo
	High School	West Alexandria
Oklahoma	High School	Bristow
	State University Preparatory School	Claremore
	High School	Granite
	High School	Hartshorne
	High School	Lawton
	High School	Manguin
	High School	Muskogee
	High School	Nowata
	High School	Ramona
	High School	Stillwater
	High School	Tahlequah
	University Preparatory School	Tonkawa
	High School	Westville
Oregon	High School	Corvallis
	High School	Marshfield
	Medford High School	Medford
	Lincoln High School	Portland
	Washington High School	Portland
Pennsylvania	High School	Allegheny
	Bethlehem Seminary	Bethlehem
	High School	Erie
	High School	Lebanon
	High School	McKeesport
	High School	Oil City
	William Penn High School	Philadelphia
	High School	Phoenixville
	Margaret Morrison Carnegie School	Pittsburg
	Allegheny High School	Pittsburg
	Girls' High School	Reading
	Technical High School	Scranton
Rhode Island	East Greenwich Academy	East Greenwich
	Technical High School	Providence

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Rhode Island	Moses Brown School	Providence
	Lincoln School	Providence
	Miss Wheeler's School	Providence
	St. Xavier's Academy	Providence
	Tyler School	Providence
	High School	Providence
	Rachel Harris Manual Training School	Woonsocket
South Carolina	High School	Marion
	High School	Spartanburg
South Dakota	High School	Lead
Tennessee	High School	Clarksville
	Knox County Central High School	Fountain City
	Farragut High School	Concord
	High School	Memphis
	Ward Seminary	Nashville
	Grove High School	Paris
	High School	Tyner
Texas	High School	Austin
	High School	Belton
	High School	Brownwood
	High School	Corsicana
	High School	Dallas
	High School	Fort Worth
	High School	Galveston
	Grubbs Self-Help and Industrial College	Greenville
	High School	Hamilton
	High School	Houston
	High School	Pilot Point
	High School	Texarkana
	High School	Uvalde
	High School	Van Alstyne
Utah	Murdock Academy	Beaver
	High School	Brigham City
	Boxelder High School	Brigham City
	Emery Academy	Castle Dale
	Snow Academy	Ephraim
	High School	Lehi
	New Jersey Academy	Logan
	High School	Manti
	High School	Moab
	High School	Mt. Pleasant
	High School	Nephi
	Sacred Heart Academy	Ogden
	High School	Ogden
	Weber Academy	Ogden

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Utah	High School	Park City
	High School	Payson
	High School	Richfield
	Salt Lake City High School	Salt Lake City
	Granite High School	Salt Lake City
	Granite Stake Academy	Salt Lake City
	Rowland Hall	Salt Lake City
	Jordan High School	Sandy
	High School	Springville
	High School	St. George
Vermont	High School	Bellows Falls
	High School	Brattleboro
	High School	Rutland
	Vermont Academy	Saxton's River
Virginia	High School	Newport News
	High School	Richmond
	High School	Staunton
	High School	Wakefield
	High School	Waverly
Washington	High School	Aberdeen
	High School	Bellingham
	High School	Castlerock
	High School	Centralia
	High School	Chehalis
	High School	Colfax
	High School	Ellensburg
	High School	Everett
	High School	Garfield
	High School	Hoqiuam
	High School	Kalama
	High School	North Yakima
	Olympia High School	Olympia
	High School	Pomeroy
	High School	Prosser
	High School	Puyallup
	High School	Seattle
	High School	Sedro-Woolley
	High School	Snohomish
	South Central High School	Spokane
	High School	Tacoma
	High School	Walla Walla
	High School	Wenatchee
West Virginia	High School	Cameron
	Charleston High School	Charleston
	Fairmont High School	Fairmont

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
West Virginia	Huntington High School	Huntington
	Wheeling High School	Wheeling
	High School	Williamson
Wisconsin	Antigo High School	Antigo
	High School	Appleton
	High School	Bayfield
	High School	Beaver Dam
	High School	Beloit
	Bethel Academy	Bethel
	High School	Eau Claire
	High School	Grand Rapids
	High School	Hayward
	High School	Janesville
	High School	Marinette
	High School	Mayville
	High School	Menasha
	High School	Menomonie
	Webster Manual Training School	Omro
	High School	Oshkosh
	High School	Stevens Point
	High School	Superior
	High School	Viroqua

3. Special Institutions.

A. Schools of Domestic Science and Arts.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Connecticut	Housekeeping Experiment Station	Darien
Dist. of Col	Nat. School Domestic Arts and Sciences	Washington
Illinois	American School of Household Economics	Chicago
	Associated Schools of Domestic Science	Chicago
	Evanston School of Domestic Science	Haven School, Evanston
Massachusetts	Miss Farmers' School of Cookery	Boston
	Y. W. C. A. School of Domestic Science	Boston
	Garland School	Boston
	Worcester Domestic Science School	Worcester
Michigan	Battle Creek Sanitarium School	Battle Creek
New York	Fitch Creche and Training School for Nursery Maids	Buffalo
	Mme. Gesine Lemcke's Greater New York School of Cookery	New York

B. Industrial Schools.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Alabama	Alabama Girl's Industrial School	Montevallo
Colorado	State Industrial School for Girls	Morrison
Connecticut	Watkinson Farm School	Hartford
	Manual Training and Industrial School	New London
	Waterbury Industrial School	Waterbury
	Institute of Craft and Industry	Waterbury
Georgia	Secondary Industrial School	Columbus
	Fort Valley Industrial School	Fort Valley
	Rabun Gap Industrial School	Rabun Gap
	Berry Industrial School	Rome
Idaho	Idaho Industrial Institute	Weiser
Illinois	Jewish Training School of Chicago	Chicago
Kansas	State Industrial School for Girls	Beloit
	Topeka Ind. and Educational Institute	Topeka
Louisiana	Southwestern La. Industrial Institute	Lafayette
	Louisiana Industrial Institute	Ruston
Massachusetts	North Bennet Street Industrial School	Boston
Mississippi	Southern Christian Institute	Edwards
New York	Margaret Sage Industrial School	Lawrence
	Manhattan Trade School for Girls.	New York
North Carolina	Brevard Industrial School	Brevard
Pennsylvania	Berean M. T. and Industrial School	Philadelphia
Rhode Island	Townsend Industrial School	Newport
West Virginia	West Virginia Industrial Home for Girls	Industrial

C. Institutions for Defectives and Dependents.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Connecticut	Mystic School for the Deaf	Groton
	American School for the Deaf	Hartford
	Oxford Street School	Hartford
	Connecticut School for the Blind	Hartford
	St. Joseph's Cathedral School	Hartford
	St. Peter's School	Hartford
	Sanford School	Redding
	St. Elizabeth's School	Ridgefield
	Taconic School	Salisbury
	St. John's Industrial School	Saybrook
	Choate School	Wallingford
Dist. of Col.	Industrial Home School	Washington

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Illinois	School of Soldiers' Orphans' Home	Normal
Kansas	School for the Deaf	Olathe
Kentucky	W. C. T. U. Settlement School	Hindman
Massachusetts	The North End Union Branch of the Benevolent Fraternity	Boston, No. 20 Parmenter St.
Minnesota	Minnesota School for the Deaf	Faribault
	Minnesota School for the Blind	Faribault
	Minnesota School for the Feebleminded	Faribault
New York	West Side Institute	New York
	Five Points House of Industry	New York
	Episc. Protectory Home for Children	Verbank
North Dakota	School for the Deaf and Dumb	Devils Lake
Ohio	Jewish Orphan Asylum	Cleveland
	Ohio Soldiers' and Sailors' Orphans' Home	Xenia
Vermont	State Industrial School (Reformatory)	Vergennes

D. Part-Time Schools.

STATE OR TERRITORY	NAME OF INSTITUTION	LOCATION
Massachusetts	Franklin Union	Boston
	Independent Industrial Evening School	Brockton
	Independent Industrial Evening School	Cambridge
	Independent Industrial Evening School	Lawrence
	Independent Industrial Evening School	Natick
	Independent Industrial Evening School	Newton
	Independent Industrial Evening School	New Bedford
	People's Institute of Northampton	Northampton
	South End Industrial School	Roxbury
	Independent Industrial Evening School	Walpole
Missouri	Y. W. C. A. Educational Department	St. Louis
New Hampshire	Mrs. Hill's Summer Classes in Cookery	South Chatham
New Jersey	Evening Technical School	Jersey City
	Bergen Street Evening High School	Newark
	Franklin Evening High School	Newark
	Hamburg Place Evening High School	Newark
	Central Evening High School	Newark
	Thirteenth Avenue Evening High School	Newark
New York	Central Evening High School for Women	Brooklyn
	School of Domestic Science	Chautauqua
	L. I. City Ev'g High and Trades Schools	Long Island City
	Sargent Industrial School	Matteawan
	Evening Industrial School for Adults	New York
	Dept. of Education, Harlem Y. W.C. A.	New York
Ohio	Educational Department, Y. W. C. A.	Cleveland
Pennsylvania	Central Y. W. C. A. Dept. of Education	Pittsburg,

This list will be completed in the October number by the addition of Negro and Indian schools.

SUGGESTED OUTLINES FOR CLUB STUDY.

COLLECTED BY MRS. OLAF N. GULDLIN.

Chairman Household Economics Department, General Federation of Women's Clubs.

I. CARE AND FEEDING OF CHILDREN.

(1). Inheritance:

Relation of selection of parents to perfection of progeny.

Conditions governing and limiting inheritance.

(2). Environment:

- Prenatal
  - Care of mother.
  - Effect of diseased parents.
- Post natal
  - Exercise.
  - Cleanliness.
  - Fresh air.
  - Preventable diseases.
  - Clothing.
  - Habits.
  - Teeth.
- Food.
  - Regularity of feeding.
  - Natural versus artificial feeding.
- Milk.
  - Its use and modification.
  - Its source and care.
  - Pasteurization and sterilization.

Patent foods.

Food for older children.

Use of drugs.

Relation of parent and child.

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Holt, E. L.: The Care and Feeding of Children. D. Appleton & Co., N. Y.

Hunt, Caroline L.: Daily Meals of School Children. U. S. Bureau of Education Bulletin, 1909, No. 3. Superintendent of Documents, Washington, D. C.

Kirkpatrick, E. A.: Fundamentals of Child Study. Macmillan Co., N. Y.

Oppenheim, Nathan: Development of the Child. Macmillan Co., N. Y.

Starr, Louis: Diseases of Digestive Organs of Children. Blakiston's Sons & Co., Philadelphia, Pa.

Washburne, M. E.: Study of Child Life. Amer. School of Home Economics, Chicago, Ill.
Pollak, Gustav: The Century Book for Mothers. The Century Co., N. Y.
Brown, D. R.: The Baby. Whitcomb & Barrows, Boston, Mass.

II. Food.

(1). The elements which compose the body and the relation these bear to the composition of the food.

(2). Composition, use, function in the body and some of the characteristics of the food stuffs:

(a) Protein; (b) carbohydrates; (c) fats; (d) mineral matter; and (e) water.

(3). The relative merits of the various protein foods.

(4). The relation of sugar, starch, fat, and protein in the dietary.

(5). What constitutes a well planned dietary.

(6). How to plan a dietary for a family of varying ages, activities, and conditions of health.

(7). Relation of right nutrition to general welfare.

(8). Diet in disease.

(9). Advanced study of digestion and metabolism.

(10). Care and preparation of food:

a. Characteristics of the food stuffs as related to their cookery.

b. Cookery of meat, eggs, cereals, bread, sauces, puddings, etc.

c. Relation of cookery to general welfare.

III. Pure Food.

(1). National and state laws.

(2). How present enactments are being carried out.

(3). The part clubs can take in bringing about better laws and in establishing sanitary markets.

(4). Food adulterations.

(5). Simple processes for detecting adulteration.

(6). The dangerous use of preserving powders in home canning.

IV. The House.

(1). Architecture.

(1). Design.
(2). Materials.
(3). Floors.
(4.) Woodwork.
(5). Mantels
(6). Windows.
(7). Porches

(2). Requirements.
- (1). Location.
- (2). Sanitation.
- (3). Ventilation.
- (4). Heating and lighting.
- (5). Tendency to omit all unnecessary ornamentation.
- (6). Rooms must have plenty of windows, closets, conveniences, outdoor sleeping porches, a summer living room.
- (7). Place of the hall in the modern houses.
- (8). The whole arrangement should simplify labor, satisfy a refined sense of beauty, be proportionate to the financial ability of the family in property and income, and really put living on a higher plane.

V. The Building of the House.

Arranged by Mrs. John Hessler, Decatur, Ill.

(1). Choosing a site.

(2). Planning the house, construction of the shell.

(3). Plumbing, heating, ventilation, lighting.

(4). Doors and doorways, windows.

Design of doors and windows, spacing and size of windows.

(5). Halls and stairways, fireplaces.

Their arrangement must keep in view the practical needs of family life and convenience.

(6). Porches and outdoor living rooms. Sleeping porches.

(7). Laying out the grounds.

A successful house will simplify the labor of the housewife, be proportionate to the means of the family, satisfy a sense of beauty, and put living on a higher plane.

Bibliography.

Chas. E. Hooper: The Country House. (This book may be used as a guide in solving practical problems of construction. Some other books are stronger on the artistic side.)

Clark: The Care of the House.

Sturgis Root, etc.: Homes in City and Country.

Desmond and Froline: Building a House.

VI. Household Decoration.

(Arranged by Mrs. John Hessler, Decatur, Ill.)

(1). Woodwork.
(2). Walls and ceiling.
(3). Floor coverings.
(4). Carpets, oriental rugs, inexpensive modern rugs.
(5). Draperies and upholstery fabrics.
(6). Furniture. (a) Historic furniture. (b) How to choose desirable furniture. (c) Colonial furniture. (d) Mission furniture, etc.
(7). Pictures, pottery, bric-a-brac—Their use and abuse.
(8). Schemes of color and arrangement.

The study of the Theories of Ruskin and of the life and work of William Morris is a good introduction to the study of house decoration. The debt of modern decorative art to the arts and crafts movement may be traced through this course of studies.

Bibliography.

Marel Tuke Priestman: Art and Economy in Home Decoration.
Wharton and Codman: The Decoration of Houses.
Davis Benis: Style in Furniture.

VII. Sanitation.

(1). Soil, cellar, plumbing, drainage.
(2). Water supply.
(3). Disposal of refuse.
(4). Lighting, heating, ventilation.
(5). Location and arrangement to secure sunlight and air.
(6). Refrigerators, sinks, bath rooms.
(7). Sterilization.
(8). Insect pests.
(9). Food adulterations.

References.

Odzen, H. N.: Rural Hygiene, Macmillan Co., N. Y.
Sedgewick, W. T.: Principles of Sanitary Science and the Public Health. Macmillan Co., N. Y.
Gulick, Luther H.: The Efficient Life. Doubleday, Page & Co., N. Y.

VIII. Labor Saving Machinery.

(1). Vacuum cleaners.
(2). Dustless mop and cloth.
(3). Fireless cookers.
(4). Gas appliances.
(5). Electric appliances.
(6). Alcohol appliances.
(7). Mop wringer.
(8). Kitchen cabinet.
(9). Kitchen water proof and washable aprons.
(10). Washing machine, hand and power.
(11). Mangles.
(12). Patent mops, cloths and brushes.
(13). Bread and cake mixers.
(14). Coffee and tea percolators.
(15). Wheel trays.
(16). Dish drainers and washers.
(17). Thermos bottles.

Labor saving is largely proportionate to the intelligent understanding and practical application of systems and methods. It is the laborer and family coöperation quite as much as the machine.

IX. The Laundry.

(1). Best processes.
  (*a*). Washing.
    Hand vs. machinery.
    Soaps.
    Softening agents.
    Starches.
    Bluings.
  (*b*). Drying.
    Out of doors.
    Artificial.
  (*c*). Ironing.
    Methods of heating irons as related to economy of time and money.
    Hand ironing vs. machine ironing.
(2). Removing stains.
(3). The economic consideration of modern equipment.
  (*a*). Stationary tubs.
  (*b*). Washing machine.
  (*c*). Mangles.
  (*d*). Electric and gas irons, gasoline and electric irons.
  (*e*). Drying equipment.

(4). The need of municipal laundries.
(5). European laundries.
(6). What has been done in America to solve the problem?

Bibliography.

Balderston, L. Ray and Limerick, M. C. Laundry Manual. Avil Printing Co., Philadelphia, Pa., 1900.

X. Textiles.

(1). Clothing.
(2). Study of materials, properties, manufacture.
(3). Hygiene of wearing apparel.
(4). Relative values of hand and machine work.
(5). Suitability for use and income.
(6). Economics of purchase.
(7). Social responsibility of wearer.
(8). Economy of time in relation to making and buying.
(9). Sweatshop problems.

XI. Household Management.

Division of Income—Expenditures:
(1). Food.
(2). Rent.
(3). Clothing.
(4). Operating expenses:
Fuel, light, water, wages, laundry, repairs, and supplies.
(5). Investment.
(6). Interest, insurance, taxes.
(7). Dentist, doctor, drugs.
(8). Incidentals.
(9). Personal expenses.
(10). Higher life:
Church, charity, education, recreation, travelling.

References.

Terrill, Bertha M.: Household Management. American School of Home Economics, Chicago, Ill.
The Journal of Home Economics.

XII. Household Management.

By Mrs. Paul Doty.

(1). The household budget for an income of
  (*a*) $1200 per year.
  (*b*) $5000 per year.

(2). A system of household accounting.
  Classification, inventory, equipment.

(3). Operating expenses.
  Materials.
    Food—wholesale or retail.
    Clothing—made or ready-made.

(4). Maintenance.
  Repairs and care of the home.
  Extensions.

(5). Labor.
  Service rendered by family members.
  Paid service and material.

(6). Rent or taxes and various kinds of insurance, life, fire, burglary, beneficiary societies.
  Shelter, heat, light.

(7). Higher life.
  Expensive education, vacation (what sort), recreation, amusement, entertainment, betterment.

(8). Home industries and their relation to expenditures.
  The arts and crafts movement.

(9). Household emergencies.
  Illness, first aid, asphyxia, burns, etc.
  Accidents.
  Fireproof construction, fire escapes, etc.

(10). Marketing.
  The selection and care of meat, comparative values, use of charts, purchase of other foods.

(11). Domestic service.
  Routine of work for a typical family; what constitutes a day's work; some problems in connection with domestic service, doing our duty; privileges and penalties; hiring and discharge.

(12). Study of child life.

Bibliography.

Mathieu, William: Chemistry of Cooking. $1.50.
Salmon, Lucy: Domestic Service. $2.00.
Church, A. H.: Food. $1.20.
Farmer, Fannie M.: Food and Cooking for the Sick and Convalescent. $1.50.
Richards, Ellen H.: Food Materials and their Adulterations. $1.00.
Hill, Sarah C.: A Cook Book for the Nurse. $0.75.
Richards and Elliott: Chemistry of Cooking and Cleaning. $1.00.
Richards, Ellen H.: The Cost of Food.
Richards, Ellen H.: The Cost of Living.
Richards, Ellen H.: The Cost of Shelter.
Thudichum: The Spirit of Cookery.
Salmon, Lucy: Progress in the Household.
Haskins: How to Keep Household Accounts.
Pestalozzi: How Gertrude Teaches her Children.
Oppenheim, Nathan: The Development of the Child.
Preyer, W. (Translated from the German by H. W. Brawn): Mental Development of the Child.
Trumbull, H. Clay: Hints on Child Training.
Compayne, Gabriel (Translated from the French by Mary E. Wilson): The Intellectual and Moral Development of the Child.
Hogan, Louise E.: A Study of a Child, Harper & Bros.

XIII. Suggestions in Solving the Servant Problem.

(1). Remove all discord that might grow out of our own inefficiency.

(2). Eliminate drudgery.

- (*a*). Regulate home life to secure justice, freedom, system, coöperation from and to the whole family, including the maid.
- (*b*). Introduce as much modern machinery and labor-saving devices as will truly save labor.
- (*c*). Apply household chemistry and study all scientific short cuts.
- (*d*). Make the house a home, not a museum.
- (*e*). Supply menus that conform to better health standards, made also with reference to work, cost, fire, and time.
- (*f*). Plan a living room for the one who is to serve.

(3). Establish industrial schools, introduce domestic science into the public schools, open extension classes in these public school departments, and everywhere create respect for intelligent labor.

(4). Train both housewife and servants how to make entertainments, dress, and the household conform to better standards and meet present day requirements.

REFERENCES.

JOURNAL OF HOME ECONOMICS, Vol. III, No. 2. Household Service as a Labor Problem.

Salmon, Lucy M.: Domestic Service. Macmillan Co., N. Y.

XIV. COÖPERATION.

(1). How can every city have successful housekeepers' conferences?

(2). The extension Home Economics worker from the State Agricultural College.

(3). The farmer's institute worker.

(4). State officers—State chemist, etc.

(5). City officers—Superintendent public schools, chairman board of health, board of safety, meat inspectors, milk inspectors, medical inspectors in public schools.

(6). City specialists—Architects, plumbers, physicians, baby specialists, eye and ear specialists, children's specialists, interior decorators, florists.

(7). Old housekeepers who have worked out the simplest methods of doing work, who understand sanitation and personal hygiene, who are expert cooks and managers.

(8). Another method—

(*a*). Secure a domestic science department from the school board.

(*b*). Employ domestic science teachers.

(*c*). Open classes to the public.

IV. PROFESSIONS GROWING OUT OF TRAINING IN HOME ECONOMICS.

(1). Home making.

(2). Supervisors and teachers in college, schools, settlements and playgrounds.

(3). Institution managers.

(4). Trained dietitians.

(5). Managers of laundries.

(6). Managers of lunch rooms and bakeries.

(7). Extension workers and professional homemakers at farmers' institutes.

(8). Sanitary inspectors.

(9). Designers—dressmaking and millinery.

(10). House decorators, furnishers.

(11). Expert buyers.

(12). Expert care of children.

(13). Where is this training procurable?

(14). The part Home Economics is taking in the adjustment of our overfed and underfed nation.

XVI. Helps in Studying Home Economics.

(1). The American Home Economics Association and the Journal of Home Economics.

(2). Write to Whitcomb & Barrows for book list.

(3). Write to American School of Home Economics, Chicago, Ill., for pamphlets upon home and club study.

(4). Get publications relating to food and other phases of Home Economics from U. S. Department of Agriculture, Washington, D.C.

(5). Coöperate closely with the chairman of Home Economics, General Federation of Women's Clubs, Mrs. Olaf N. Guldlin, Fort Wayne, Ind.

XVII. Suggested Subjects.

What clubs are doing in Home Economics.

(1). Helping to obtain a fund to build model tenement houses in Los Angeles.

(2). Holding housekeepers' conferences, short courses, demonstrations, and lectures.

(3). Settlement work.

(4). Placing domestic science books in public libraries.

(5). Securing state traveling libraries on domestic science.

(6). Coöperating with agricultural colleges in extension work.

(7). Coöperating with corporations in securing exhibits.

(8). Taking part in state conferences at universities.

SIX TALKS ON HOUSE MANAGEMENT AND METHODS.

The following plan will be used in Baltimore, Maryland, during the season of 1911 and 1912 under the auspices of the State Federation of Women's Clubs. The talks will be given monthly from November to April inclusive and will be abundantly illustrated. It is expected that groups of women will be interested in taking up subjects under each head for closer study, their results to be reported at the following meeting.

(1). The kitchen.

Its proper size, lighting, and ventilation; arrangement of furniture; means of lighting by a high window; use of shelves. The outfit of a 7 x 10 ft. kitchenette of an apartment house and of a 14 x 18 kitchen. What are we to do with a large kitchen? The floor and its care. Kitchen walls.

The country kitchen, its special problems.

Table tops of wood, oil cloth, zinc.

Bring drawings if possible.

(2). Utensils, good and bad.

Where shall they be kept; some of the newer utensils. Kitchen spoons, aluminum ware. The fireless cooker; what it will do and what it will not do. Smokeless broilers. The kitchen cabinet. Fireproof serving dishes. The casserole, self-basting roaster, and bread mixer. The shad plank. Dish drainers. Lid holders, mop wringer.

(3). Fuels compared as to cost of equipment.

Cost of running; the best method of using and efficiency of wood, hard coal of different sizes, soft coal, coke, charcoal, gas, kerosene, alcohol, and electricity; gas from gasoline for country houses; iron tops for gas stoves. Separate heaters for water; the gas heater, the coil in the furnace, the small stove in the cellar connected with a jacketed waterback.

(4). The laundry.

Shall laundry tubs be put in the kitchen and their use as a table?

What washing machinery is to be recommended?

The best methods of washing. Removing stains.

Cost of home and outside work compared.

How to reduce the amount of ironing.

(*a*). By the use of the mangle, its cost and operation. A new use for a letter press.

(*b*). The larger use of woven and seersucker underwear.

The alcohol iron, the iron in an asbestos hood. The laundry sprinkler.

(5). Cleaning methods.

Our relation to the architect; tight windows, tight floors, smooth wood work without dust catchers.

Out relation to dirt outside the house, the smoke nuisance, dirty streets.

Proper treatment of wooden floors and rugs.

The vacuum cleaner—cost and use.

Methods of sweeping and dusting—window washing.

Cleanliness to be regarded from two points of view—hygienic and esthetic.

(6). Methods of doing work to save time and strength.

The height of tables and sinks and ironing boards.

Bad postures. The need of a change of work.

The importance of working in good light and air.

The basement kitchen.

Lessons learned from institutional methods.

How to save steps: The "cold pantry." Use of the tray and of tables on castors.

The "ten-hour day" in house work and its relation to the service question.

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FOODS AND COOKERY.

A Forequarter of Lamb. Anna Barrows. *Good Housekeeping*, January, pp. 90–93. Directions, Illustrations.

Lessons in Elementary Cooking. Mary Chandler Jones, of Brookline, Mass. Schools. *Boston Cooking School Magazine*, January-April. Outlines of School lessons.

Cookery in Literature. E. E. M. *Boston Cooking School Mag.*, February, pp. 345–347; March, pp. 371–373. Interesting quotations.

Cottonseed Meal as Human Food. G. S. Fraps. Texas Agr. Exp. Sta. Bul. 128. Abs. in *Chem. Abs.*, February 20, p. 734.

Nuts as Food. Frederic J. Haskin. *Am. Food Jour.*, February, pp. 27–28.

A New Confection. C. Schenk. *Chem. Abs.*, March 10, p. 928. (Seeds of the cashew tree.)

Preparation of the Cod and other Salt Fish for the Market, including a Bacteriological Study of the Causes of Reddening. A. W. Bitting. U. S. Dept. of Agr., Bureau of Chem. Bul. 133.

The Centenary of Glucose and the early History of Starch. B. Herstein. *Jour. Ind. and Eng. Chem.*, March. pp. 158-168.

A Discussion of the Cider Vinegar Standards. *Pure Products*, 6, 707. Abs. in *Chem. Abs.*, March 10, p. 927.

Studies of Poultry from the Farm to the Consumer. M. E. Pennington. U. S. Dept. Agr., Bureau of Chem., Circ. 64.

Determination of Cocoa Shells in Cocoa Powder. W. L. Dubois and C. I. Lott. *Jour. Ind. and Eng. Chem.*, April pp. 251–252.

The Detection of Prune Juice and Caramel in Vanilla Flavoring Extracts. W. Denis. *Jour. Ind and Eng. Chem.* April pp. 254–255.

Adulteration of Pepper. Kühl. *Chem Abs.*, March 20. p. 1132.

Detection of Peanuts in Pastry. H. Haupt. *Chem. Abs.*, March 20, p. 1129.

Tomato Ketchup under the Microscope. B. J. Howard. U. S. Dept. of Agr., Bureau of Chem., Circ. 63.

The Detection of Peanut Oil in Olive Oil. P. Borisch. *Chem. Abs.*, March 10, p. 927.

A method for the Determination of Tin in Canned Foods. H. Schreiber and W. C. Taber, *Jour. Ind. and Eng. Chem.*, April, pp. 257–261.

The Estimation of Essential Oils. C. D. Howard. *Jour. Ind. and Eng. Chem.*, April, p. 252.

Test for Age of Milk. H. Bertin-Sans and E. Ganjoux. Abs. in *Jour. Am. Med. Assn.* April 1. p. 1009.

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The Preparation and Properties of an Oxidase occurring in Fruits. H. P. Bassett and F. Thompson. *Jour. Am. Chem. Soc.*, March, pp. 416–423.

Nutrition.

The Digestion of Vegetables. A. Schmidt. *Jour. Am. Med. Assn.*, April 15, p. 1154. Review of an article in *Deutsche medizinische Wochenschrift.* March 9.

The Nutritive Value of Beef Extract. *Pharm. Journ.* (*London*) 4, ser. 31 (1910) No. 2455, p. 548. Abs. in *Exp. Station Record* 24 (1911) No. 2, February, p. 168.

The Assimilation of Blood as Food. E. Beck. *Chem. Abs.*, March 20, p. 1129.

Metabolism Experiments with Elastin. E. Abderholden and E. Ruehl. *Chem. Abs.*, March 20, p. 1135.

Present Knowledge of Thyroid Function. S. P. Beebe. *Jour. Am. Med. Assn.* March 4, pp. 658–661.

The Function of the Thymus. Editorial, *Jour. Am. Med. Assn.*, March 25, pp. 898–899.

Functions of the Pancreas in Intestinal Absorption when disconnected from the Intestine. U. Lombroso, *Chem. Abs*,. March 20, p. 1119.

Ten Years Progress in the Field of Protein Metabolism. Otto Folin. *Cleveland Medical Journal*, vol. 8, pp. 645–52; Abs. in *Chem. Abs.*, April 20, p. 1475. (A valuable review.)

Contribution to our Knowledge of Protein Metabolism. F. Frank and A. Schittenhelm, *Chem. Abs.*, April 10, p. 1307–8. (R lative value of different protein foods.)

Protein Metabolism in the Dog and the Secretion of Bile after Feeding Protein and Protein Cleavage Products. A. Loeb. *Chem. Abs.*, April 10, p. 1307. (Certain proteins increase bile flow.)

Studies on Drinking Water. III. On the Uric Acid Elimination Following Copious Water Drinking Between Meals. S. Z. Rulon, Jr. and P. B. Hawk. *Jour. Am. Chem. Soc.*, 32, pp. 1686-91.

The Influence of Muscular and Mental Work on Metabolism and the Efficiency of the Human Body as a Machine. F. G. Benedict and T. M. Carpenter. U. S. Dept. of Agr., Office Expt. Stations, Bul. 208.

The Calorimetric Valuation of Infants Foods. H. Mettenheimer. *Chem. Abs.* March 10, p. 933. (A mechanical device).

Purine Metabolism of the Child. A Niemann. *Chem. Abs.*, March 10, p. 934.

The Digestion of Fat in the Stomach and Small Intestines and the Influence of Lecithin upon Them. Usuki. *Chem. Abs.*, March 10, p. 936.

The Influence of the Removal of Parts of the Intestinal Tract on the Character of Nitrogen Metabolism. II. The Removal of the Small Intestine. Carrel Meyer and Levene. *Am. Jour. Physiol.* 25, pp. 439–445.

Influence of Cold Baths on the Glycogen Content of Man. Graham Lusk. *Am. Jour. Physiol.* March.

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Significance of Lecithin in the Metabolism of the Infant. J. and W. Cronheim. *Chem. Abs.*, April 20, p. 1477.

Energy Metabolism of Mother and Child Just Before and Just After Birth. T. M. Carpenter and L. R. Murlin, *Archives of Internal Medicine*, February, Abs. in *Jour. Am. Med. Assn.*, March 25, p. 925.

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The Poisonous Effects of Alcoholic Beverages not Proportional to their Alcoholic Contents. D. D. Whitney. *Science*, April 14, pp. 587–590.

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The Air we Breathe. Kent, Crowell, and Jones. *Science*, March 31, pp. 486–491. (Correspondence explaining our knowledge of the science of heating and ventilation.)

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The Influence of Underground Waters on Health. B. Latham. *Surveyor, 38*, pp. 374–6; abs. in *Chem. Abs.*, March 10, p. 942.

The Control of Pasteurization. G. Koehler and F. O. Tonney. *Jour. Am. Med. Assn.* March 11, pp. 713–718. (By Asst. Commissioner of Health and Director of Municipal Laboratory, Chicago).

Sanitary Inspection of Oyster Grounds in the United States. C. A. Fuller. *Jour. Am. Med. Assn.*, March 11, pp. 733–736. (From the Dept. of Bacteriology and Hygiene, Univ. of Wisconsin).

Intestinal Bacteriology: A Summary. Arthur I. Kendall, M.D. *Jour. Am. Med. Assn.*, April 15, pp. 1084–1088. (Technical).

Housing Conditions in Chicago, Ill.: Back of the Yards. Sophoniaba P. Breckenridge and Edith Abbott. *Amer. Jour. Sociol.*, January pp. 433–468.

Congestion and the Housing Problem. E. H. Brush. *Rev. of Reviews*, February, pp. 119–207. (With reference to City and Suburban Homes Company).

Textiles and Clothing.

Some Points in choosing Textiles. Charlotte M. Gibbs, M. A., Univ. of Ill. Bul. vol. VIII, no. XV. pp. 18. (Information which every housewife should have—4 Illustrations).

Rags for Many Uses. F. Huntley. *The Housewife.* March, p. 13. (Practical economical suggestions).

The Creation of a New Industry. Herbert Myrick. A magazine published to explain the treatment and making of wire grass furniture.

Practical Embroidery Designs, *The Mother's Magazine*, March, p. 57. Designs for underwear and infants garments.

The Fashions, Miss Gould. *The Household Companion*, February, p. 4 E. (Dress Accessories).

Adulterated Clothing. Mary and Lewis Theiss. *Pearsons*, March.

Tensile Strength of Hair Cloth. C. P. Fox. *Jour. Indus. and Eng. Chem.*, February, pp. 112–113. (Human hair used in fabrics for interlining men's garments).

Chlorination of Woolen Goods. E. Lodge. *Possells Textile Journal*. February, p. 52. (The process invented by John Mercer).

Imperfections in Dyed Cotton Cloth. Dr. Louis J. Mates. *Textile World Record*. March, p. 124. (Causes of "damaged goods").

Bleaching Lace Curtains. Dept. Question and Answers. *Textile World Record*. March, p. 103. (Explanation of the bleaching process).

Manufacture of Artificial Silk from Cotton. H. R. Carter. *Cotton*, 75, p. 31; Abs. in *Chem. Abs.*, February 20, p. 289.

Ancient Swiss Jewelry—The Influence of a Military Uniform on Costume. Part II. J. Van Sommer. *The Craftsman*, February, pp. 515–516.

China Embroidery. Mamia Bastin. *American Homes and Gardens Magazine*. Frebuary, p. 72. (An inspiration in line and color for practical use.)

Education and Social Work.

The Penny Lunch Movement. Emeline E. Torrey. *Good Housekeeping* February, pp. 242–244. The Boston Experiment. Two Illustrations.

Three Cent Luncheons for School Children. Olivia H. Dunbar. *Outlook*, January 7, pp. 34–37. Account of successful 3c. luncheons in N. Y. City.

The Vital Question of School Lunches. Mary J. Mayer. *Rev. of Reviews*, April, pp. 454–459. Illustrations.

For the Children of Tomorrow. *Independent*, March 16, pp. 580–581. Editorial on pure milk.

Coöperation to Stop the Leak between Farmer and Consumer. Editorial, *The Craftsman*, February, pp. 427–431.

An Educational Wonderworker. Josephine Tozier. *McClure's*, May.

Defective Children in School: A Social Safeguard. Olivia Howard Dunbar. *Rev. of Reviews*, April, pp. 449–454. Illustrated.

A School Where Girls are Taught Home-Making. Prof. Lewis M. Terman. *The Craftsman*, April, pp. 63–68. High School at Holywood, California.

Vocational Training for Girls. Isabelle McGlauflin. High School, Denver. *Education*, April, pp. 523–526.

The Boy of To-morrow. Arthur D. Dean. *World's Work*, April, pp. 14282–14290. Vocational education.

Women Laundry Workers in New York. Sue Ainslie Clark and Edith Wyatt. *McClure's*, February.

Why Women are Paid less Than Men. Richard Barry. *Pearson's*, March.

Nationalism and the Working Woman. Theodore Roosevelt. *Outlook*, February 11, pp. 304–306. Editorial: Efforts of Consumers League and of legislators to better conditions.

Occupational Diseases. William Ludlow Chenery. *Independent*, February 9, pp. 306–309. Reviews recent progress.

Miscellaneous.

How Primitive Mound Houses became Square and Oblong. W. S. Sparrow. *Fortnightly Review.* March.

The Perkin Medal Award. *Jour. of Ind. and Eng. Chem.*, March, pp. 143–151. Interesting notes on the early history of aluminum.

Eugenetics and Genetics. G. Clarke Nuttall. *Fortnightly Review.* March.

The Servantless Home. Mary H. Talbott. *Good Housekeeping.* April, pp. 469–470. Some practical suggestions.

Running a House by Rule. Elizabeth Hale Gilman. *Delineator*, February–April. (Series on kitchen utensils, dining-room, service, marketing, etc.)

Home Economics in Iowa. Caroline L. Hunt. *Good Housekeeping*, April, pp. 460–465. One of a series of articles, 1910–11.

The Cost of Living. Henry Pratt Fairchild. *Popular Science Monthly.* April, pp. 377–380. The cost of food increases as the rush to the cities continues.

Country Hospitals and Nurses—A Long Step Forward. *World's Work.* April, pp. 14196–7. (Editorial.)

Needed—A Domestic Immigration Policy. Frances E. Kellor. *North Am. Rev.* April.

The Vital Decade of our commercial History. James E. Dunning, *North Am. Rev.*, March.

Scientific Cooking by Gas in the Diet Kitchen of A Famous Hospital. Vincent S. Cooke. *Gas Logic*, (N.Y.) April, pp. 3–4 (In Johns Hopkins Hospital).

THE FORM OF PHOSPHORUS IN MEAT.

Louise Stanley.

Home Economics Department, University of Missouri.

For some time it has been considered that all of the water-soluble phosphorus in meat has been present in an inorganic form. In some work done two years ago at the University of Missouri we questioned the method which previous experimenters have used in the separation of organic and inorganic phosphorus, and by our method of separation we showed that practically all of the soluble phosphorus is present in an inorganic form. This compound is split, and in roasts cooked at different temperatures we find a corresponding decrease in the amounts of organic phosphorus, the roast which was cooked at a temperature of 98.5° containing practically no phosphorus in the organic form. These results, if correct, will have some significance in feeding where it is desired to give as much phosphorus as possible in the organic form. A fuller report of this work can be had by referring to the *Journal of Industrial and Engineering Chemistry*, May, 1910.

NATIONAL EDUCATION ASSOCIATION.

Department of Manual Training and Art.

PROGRAM.

President, Clifford B. Connelley, Pittsburgh, Pa. *Secretary*, C. Valentine Kirby, Buffalo, N. Y.

Meeting place: San Francisco, Cal., July 8-14, 1911.

General.

(1). To What Extent Does Manual Arts Training Aid in Adjustment to Environment: Clifford B. Connelley, Dean of School of Applied Industries, Carnegie Technical Schools, Pittsburgh, Pa.

(2). The Dynamic Value of Manual Arts in the Public School System of Education: Hon. T. D. Sensor, Dept. of Public Instruction, Trenton, N. J.

(3). The Requisites of the Efficient Teacher in Industrial Schools: Dr. G. E. Gerwig, Sec'y of Board of School Controllers, N. S., Pittsburgh, Pa.

Discussions: James Edwin Addicott, Director of Education, Summer Institute of Mechanic Arts, Oakland, Cal.; Prof. Sherer, Throop Polytechnic Institute, Pasadena, Cal.; Mr. Winslow.

Household Arts.

Chairman: Miss Ednah A. Rich, President, State Normal School of Manual Arts and Home Economics, Santa Barbara, Cal.

(1). Report of Committee on Nomenclature: Miss Ednah A. Rich.

(2). The Public School Domestic Science Department as an Influence in the Community Enforcing the Observance of Pure Food Laws, Civic Cleanliness, etc.: Miss Mattie P. Clark, Polytechnical High School, Oakland, Cal.

(3). Some Actual Needs for Intelligent Purchasing of Household Commodities and Practical Methods for Keeping Household Accounts: Miss Etta P. Flagg, Los Angeles, Cal.

Discussions: William R. Snyder, Prin. Hollywood High School, Hollywood, Cal.; Miss Harriet A. Boyer, Head of Domestic Science Department, H. Sophie Newcomb Memorial College, Tulane University, New Orleans, La.

Art.

In Charge of Meeting: A. B. Clark, Department of Drawing, Leland Stanford Junior University, Stanford University, Cal.

(1). Art Education in the Public Schools, an Essential Civic of Perfection: Mr. A. B. Clark.

(2). Art's Service as a Basis for Classified Knowledge (Scientific Development): (Speaker not selected.)

(3). What has Art in the Schools done to Preserve and Cultivate the Imagination: Miss May Gearhart, Supervisor of Music, Los Angeles, Cal.

Discussions: Ellsworth Woodward, H. Sophie Newcomb Memorial College, New Orleans, La.; Katherine M. Ball, Supervisor of Drawing, San Francisco, Cal; Miss Hitchell, Supervisor of Drawing, Chicago.

Manual Training.

Chairman: Clifford B. Connelley, Dean of the School of Applied Industries, Carnegie Technical Schools, Pittsburgh, Pa.

(1). The New Standard of Present Day Industrial Education in Europe: Paul Kreuzpointner, Chairman of Industrial Committee, American Foundrymen's Association, Altoona, Pa.

(2). The Requisites of Effective Teaching in Manual and Household Arts: Miss Helen Louise Johnson, Director, Good Housekeeping Institute, Springfield, Mass.

(3). Present Problems in the Literature of the Manual Arts and Vocational Education: William T. Bawden, Assistant Dean of the College of Engineering, University of Illinois, Urbana, Ill.

Discussions: Mr. Louis Butler, Supervisor of Manual Training, San Jose, Cal.; Arthur G. Chamberlain, Throop Polytechnic Institute, Pasadena, Cal.; George A. Merrill, Prin., California School of Mechanical Arts, San Francisco, Cal.

EDITORIALS.

Death of Mrs. Richards.

We refer our readers to page 213 for a brief obituary notice of Mrs. Richards followed by a tribute from the president of this Association, Professor Isabel Bevier. Those who will gladly learn more of this useful and many-sided life will be interested to know that the October number of this JOURNAL will be used as a memorial to Mrs. Richards to which many of her co-workers will contribute. Especial emphasis will be laid on her relation to the Home Economics movement, for in this she has always been the central figure. Her relation to it was indeed so unique that one seeks in vain for a parallel. She in her own life saw the transition from the simple and almost primitive conditions in this country when the varied activities of the farm household fitted the girl and boy for life's duties, to the more specialized conditions of town and city which called for training of hand and eye and the learning of household arts in the light of the newer scientific knowledge; which made necessary, also, the restating in modern terms of the relation of woman to the home and the place of the home in our developing national life. This movement came to be the most absorbing of her interests and to its promotion, her scientific training and her immense power of labor paid generous tribute. She lived to see it recognized, honored and adopted into our educational ystem.

Photograph of Mrs. Richards.

Copies of the photograph of Mrs. Richards that appeared in the February number of the JOURNAL may be ordered through the JOURNAL. Price 25 cents.

Summer Meetings of the Association.

Two Summer Meetings of the American Home Economics Association will be held in June and July, 1911. One of these is a section meeting at the National Education Association Convention, San Francisco, July 8–14, at which time a four-day program of the Association will be given on the afternoons of July 10, 11, 12 and 13; the other is a meeting of the Administration Section at the Lake Placid Club, June 27-July 1.

A strong program is being arranged for the San Francisco meeting, including in addition to scientific papers, topics which will be of espe-

cial help to teachers and housekeepers. This will be the first meeting of the American Home Economics Association in the far west and will undoubtedly bring together from that section many persons interested in Home Economics.

The Administrative Section will devote its attention to the problems of management in the private household and the institutional household. It will be of interest especially to persons professionally concerned with household management, but teachers of Home Economics will also be welcome to the conference and will find in it much help. It is announced that "the trustees of the Lake Placid Club extend member's privileges to all who attend the conference. The charge for table board is $2.50 per day and rooms will be furnished without expense."

The full programs of the two meetings will be mailed to all members of the American Home Economics Association early in June.

Study Courses for Women's Clubs.

Club women and individuals who are interested in the development of household processes along modern lines will find suggestions in the outlines for club study furnished by Mrs. Guldlin, Chairman of Household Economics in the General Federation of Clubs, and also in the more detailed plan that is to be used by club women in Baltimore, Md., during the next season. In working out all such plans original sources of information should be sought in books on the subjects, in bulletins issued by the various technical schools and universities having departments of Home Economics, and wherever accurate information may be found. Such references when found should be carefully preserved and put at the service of other groups. In future numbers of the JOURNAL will appear lists of reference books so annotated that they will be of real use to the student, and the editor will welcome help from any quarter in the preparation of such lists. The present waste of effort in all these lines should cease.

Subscribers and Members.

Our readers may be interested to learn that on May 1, renewals to the JOURNAL for 1911 had been received comprising substantially two-thirds of the subscribers of last year, and the majority of these were also enrolled as members of the Association. The paid subscriptions now number over 1000 and the membership list is about 830.

These figures are encouraging in that they represent considerable increases over the corresponding enrollment at this date on any previous year. There have been surprisingly few absolute withdrawals from our lists, and many who have for a time severed their connection have again joined the number. These facts, together with the large number of new names steadily being added, bear witness that there is room for a publication such as the JOURNAL and that the Association meets an actual need.

Encouraging as is the situation, viewed from this standpoint, much yet remains to be done. There are still too many from whom no definite decision as to continuance or withdrawal for the future has been received, and not until the element of uncertainty thereby created has been removed can plans be made. We therefore urge upon our present subscribers that they assist in making the JOURNAL better by enlisting the support of friends and associates and thereby increasing the resources at our disposal. Special efforts are being made to enlarge and strengthen our organization, and upon the success of these efforts and the coöperation of all who are interested in the promotion of the cause of Home Economics will depend the fate of the plans for a larger usefulness which are now being formulated.

Back Numbers of the Journal.

The editors repeat their request for numbers 1 and 2 of Volume I and number 1 of Volume II. Forty cents will be paid for each number in cash or in credit on subscriptions.

A Correction.

Attention is directed to a typographical error in the article entitled Planning Meals, by Miss Emma S. Jacok, which appeared in the April JOURNAL. On page 163, the final lines should read "4 ounces of protein, 4½ ounces of fat and 16 ounces of carbohydrates will meet the above requirements."

NEWS FROM THE FIELD.

Florida State College for Women.

The department of Home Economics has grown beyond expectation. New equipment has made it possible to accommodate large classes in both cooking and sewing, and three different classes are running nearly every period of the working hours. Advanced students in domestic science are required to serve dinners to special guests in parties of eight, and the delicious courses served, as well as the attractive service by the girls is convincing proof of the excellence of training in this line.

To say that the students pursuing Home Economics enjoy their work is stating the situation mildly, for they not only enjoy it, but they manifest the greatest eagerness and enthusiasm in giving their thoughts as well as their hands to the mastery of these household arts.

Miss Margaret McCarty, director of the department, has been called to different parts of the state in extension work for frequent addresses. Miss Lewis, the teacher of domestic art, was invited to give an address on Ways and Means of Improving Home Life at the Educational Conference held in Jacksonville in April.

Michigan Agricultural College.

At a women's congress which was held March 2 and 3, in connection with the Michigan farmers' institute round-up, the following subjects were discussed: The parents' obligation to the child; the prevention of infant mortality; health and beauty in home and school; household management; business methods for farmers' wives; the home reading table; practical demonstrations in bacteriology; food values; and hints on the selection of textiles. There was also an exhibition and demonstration of the application of electricity to domestic purposes.

Throughout the state of Michigan the women's clubs are interesting themselves more and more in domestic science work. They have a special day for programs relating to it and many are studying domestic science books regularly. They are also helping to establish Home Economics courses in the schools and colleges of the state.

The demand for speakers on domestic science subjects is increasing rapidly although the department as yet gives no short course.

University of Missouri.

Miss Nelle Nesbitt, assistant in the department of Home Economics, is doing some work on the amount of protein consumed per day by college girls to see exactly upon what standard they are living.

Miss Winona Woodward, a student assistant in the department, is continuing her studies in isolating the organism which causes flavor in salt rising bread. When this is finished she expects to compare salt rising with other bread as to the chemical constituents which cause its flavor.

Miss Charley Tidd, also an assistant in the department, has been doing some work in connection with the department of education on the relation of the school work to the home. This research will be presented as a master's thesis in the school of education in June.

College of Industrial Arts, Denton, Texas.

Plans are being projected for the establishment of an experimental station. The department is already coöperating with the agricultural department of the college in a study of fibre materials. Texas offers an unusually fine field for this kind of work because of the great variety of high class fibres, both animal and vegetable, that are and can be produced. Experiments with silk culture have been successful.

Next year the college is planning to join the Texas Agricultural and Mechanical College in a demonstration tour in agriculture, stock raising, and Home Economics. Special plans are being made for textile demonstrations at this time.

An outline in textile and Home Economics study for the women's clubs of the state has been issued. The outline, in connection with one on domestic science, is to be published through the Home Economics committee of the state federation. The department is also actively coöperating with the Eight Week Clubs of the Y. W. C. A. of Texas in arranging courses of study in textiles and Home Economics for both the city circles and the country associations.

Agricultural College of Utah.

The department of Home Economics was represented by one worker on the special trains which were run over the central part of Utah in February doing institute work. In the morning and afternoons demonstrations on bread and meat were given, and in the evening talks on housekeeping in a joint session with the men.

The college year has been the most successful thus far known, as there have been 170 girls in the department, a large proportion of whom have stayed through the year.

The courses offered in the Home Economics department at the Summer School of 1911 have been arranged with particular reference to the needs of Home Economics teachers who wish advanced work, of teachers who wish to begin a study of the subject, and of regular students who wish to continue work during the summer.

The woman's building, which is entirely devoted to domestic science and domestic art work, affords opportunity for studying the design and cost of equipment. The library contains most of the new books pertaining to Home Economics.

The courses offered include two laboratory courses in food, one for beginners and one for advanced students; dietetics and nutrition; a teachers' course; household art; dressmaking; and applied art.

University of Wisconsin.

The extension work for the college of agriculture this year has included courses for housekeepers and farmers' wives in nine centers in the state. The work has been received very enthusiastically and as a rule the attendance has been very large. Mrs. Nellie Kedzie Jones of Minneapolis has been the speaker at three of the meetings. Otherwise the teachers of Home Economics at the county agricultural schools and lecturers from the university have carried the work.

The subjects of Home Economics and manual training may now be offered for credit for entrance to the university to the extent of four units.

Lewis Institute, Chicago.

A four year course leading to a B.S. degree in domestic science and art is to be offered next year. This will mean three years of technical work, including English, with one year of general college work. A student may specialize after the second year, in either science or art. Special students in domestic science have been furnishing lunches for fifty, with great satisfaction to themselves, to the fifty, and to the business manager.

Mechanics Institute, Rochester, N. Y.

During the past winter the physicians of the Infants' Summer Hospital and the management of Mechanics Institute coöperated in arranging for a course in infant nursing, to be offered during the spring term at the institute, and to be followed by two months' practical experience in the Infants' Hospital. Entrance to the course, it was decided, should require at least a grammar shcool education, a high school diploma being even more desirable.

Six young women enrolled at the beginning of the term, and are now receiving daily instructions in food values, the preparation and cooking of food for little children, hygiene, child study, household science with simple experiments, and sewing and laundry for the nursery. These lessons are supplemented by a weekly lecture from some local physician on the care of children, children's diseases, etc. Students have opportunity to do practice work in the nurseries of the Rochester Orphan Asylum and the Baden Street Settlement.

While the course is naturally still in its infancy its success is already assured, and it is none too soon to prophesy that by another year, when its possiblities are more generally understood, the capacity of the class will be tested to its utmost.

Union High School, Phoenix, Arizona.

The domestic science departments recently held an exhibition of household arts. The exhibition was held to show especially the class of work done in sewing, as its superiority and quality are not generally understood.

A number of dainty and well-made dresses made by girls of the eighth grade were greatly admired. These dresses showed great care in matching embroidery with cloth. It had been selected with close attention to suitability, durability, and simplicity of design.

Many caps and cooking aprons, the first machine work done by the classes, were included in the exhibit. The hand work on exhibition from the fifth and sixth grades consisted of cleanly looking holders and little hand towels, each marked with the name of the student who made it. The lettering was in cross-stitching with red cotton.

The beautifully darned stockings and neat patches were said by one of the judges of sewing at the local fair to be far superior to anything entered there.

Home Economics in Kansas.

There has been for seven years a department of domestic science in the Manual Training Auxiliary Normal School at Pittsburg, Kansas. In 1910–11 departments of household science have been established in the Western Branch Normal School at Hays, in the Main Normal College at Emporia, and in the State University at Lawrence.

The work at Hays is under the direction of Miss Agnew, a graduate of the State Agricultural College. That at Emporia is under the direction of Mrs. Beth Warner Mull, with two assistants, Miss Gertrude Flinn and Miss Muriel Williams of Stout Institute, Menomonie, Wis.

Fifteen per cent of the high schools in the state have nominal domestic science departments. There is excellent and permanent work being done in the high schools of Kansas City, Topeka, Leavenworth, Iola, Parsons, Emporia, and Wichita and a number of the county high schools. Miss Alta Morgan has charge of the work in the high school at Harper.

The work has received great impetus this year through several avenues: viz. (1) Miss Brown's enthusiastic field work; (2) The establishment of departments in in the state university and the Normal; (3) through the appropriation, by this year's legislature, of $250 from the state fund to be paid annually to any high school which gives the one year normal course and has a course in agriculture, for the purpose of helping pay the salary of an additional teacher for domestic science. It is believed that with the training of more teachers the work will begin to establish itself on a firmer basis.

Second Annual Western Meeting, Teachers of Home Economics.

The second annual meeting was held at Salt Lake City, April 7 and 8, a part of the meetings being at the University of Utah. The program included papers on the following topics: The desirability of a state course of study in Home Economics in the grades and in the high school; school lunches; courses in domestic art for the seventh and eighth grades; courses in domestic science for the seventh and eighth grades; and work in rural communities. A business meeting was held for the adoption of a constitution and formation of a permanent organization.

BOOKS AND LITERATURE.

Sociology and Modern Social Problems. Charles A. Ellwood, Ph.D., Professor of Sociology, University of Missouri. American Book Company. Pp. 331.

In his preface, the author states that "this book is intended as an elementary text in sociology as applied to modern social problems, for use in institutions where but a short time can be given to the subject. . . . The book is also especially suited for use in university extension courses, and in teachers' reading circles."

Almost the first half of the treatise is devoted to a study of the principles of sociology as they are illustrated in the origin, form, and historical development of the family, the family being taken as a typical human institution. The second half of the book comprises a discussion of certain social problems, such as the immigration problem, the negro problem, poverty and pauperism, etc.

These are modern social questions, and the author discusses them concretely. In each case, he presents the situation and then seeks to discover its causes. He states repeatedly that the origin of each social problem, lies not exclusively in any one cause, but is the result of economic, biological, and psychological factors. Especially is he insistent on the fact that economic maladjustment is an inadequate explanation of adverse social conditions.

Dr. Ellwood thinks that there exists in America an exaggerated individualism, and that this trait is appearing in the life of women. This he laments. He overemphasizes, it would seem, the difference between the sexes, saying that in the male, metabolism is much more rapid than in the female. In a recent book[1] we find the statement that the metabolism of men differs but little from that of women, the variation being due to a difference in weight, size, and muscular activity rather than to any sex difference.

The book may be read with profit by anyone unfamiliar with the principles of sociology and unacquainted with the causes of some of our more pressing social problems. The discussion of these problems is comprehensive and the terminology simple. Several tables of reliable statistics are presented, and conclusions from these are cautiously drawn. The avowed purpose, as stated in the preface, is well carried out.

Diet and Nutrition of the Filipino people. V. G. Heiser, Ann. Rpt. Bur. Health, Philippine Islands, 1909, pp. 25–29.

Heat elimination of the body, heat requirements, the kinds and amounts of food consumed by Filipinos, and similar topics are considered, the article as a whole being based on a paper on the Diet and Nutrition of the Filipino People, by H. Aron, assistant professor of physiology at the Philippine Medical School.

[1] Sherman: Chemistry of Food and Nutrition, p. 171.